THE

PRINCIPLES OF FORM

IN

ORNAMENTAL ART.

BY

CHARLES MARTEL,

AUTHOR OF "THE PRINCIPLES OF COLOURING IN PAINTING."

FIFTH EDITION.

Ars probat artificem.

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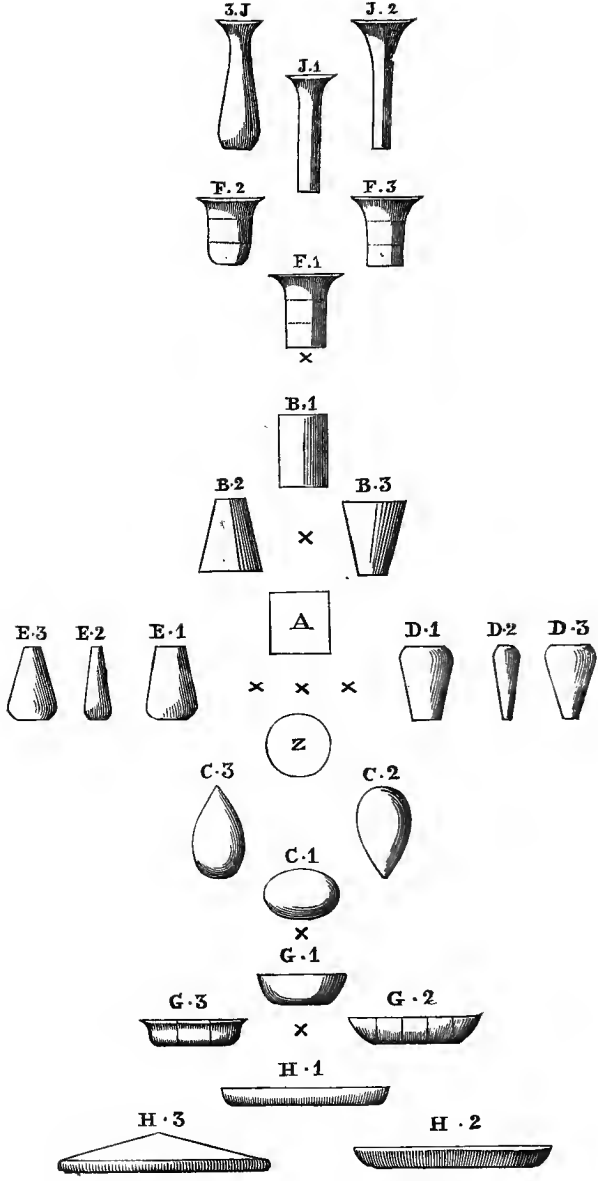
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PREFACE.

MUCH has been said and written about the *Principles of Art*; but nothing is more difficult to find, even in works professedly treating upon this subject. In fact, from amongst the numerous books extant in the English language which treat upon various Art-topics, it is scarcely possible to glean a ray of light sufficient to guide the student in any original essay, either in the fine or technical arts. Before the scientific researches of Chevreul were made accessible to the artist, the important subject of the harmony and contrast of colours, was a complete chaos of crude-dogmatism in the hands of those, who, when they put their own precepts into practice, produced a result universally pronounced—ridiculous. Even the human form has been submitted to line and rule, its free contours squared, and the compass, with the aid of the rule of three, made to perform the office of creative intelligence. Only the light of science can dispel these *ignes fatui*. The Principles of Art rest securely upon

a scientific basis, and any attempt to elucidate them without it, can only lead the student to confusion and disappointment.

So far as the very limited space at command has permitted, the following pages will be found to contain a summary of the most important canons of Ornamental Art in connection with Form and its treatment, in Architectonics, and in the Ceramic Art. These subjects are chosen for their primary importance in Ornamentation, and the community of principles existing among the various arts permits their application to the Technic arts generally: to all works, requiring or admitting of embellishment. It has not been thought necessary to enter upon the question of Colour, as that subject has been fully discussed in a scientific manner, by M. E. Chevreul, to whose work the student is referred.

A book on so vast and comprehensive a subject as Ornamentation, admits of an infinite amount of illustration. Ornamental Art is best illustrated, not by engravings, but in the original works upon which it has been applied. The student will find abundant illustrations of the most instructive character in the treasures of art contained in the British Museum, in the Ceramic collection at the Geological Museum in Jermyn Street, and at the South Kensington Museum. All that relates to Architectonics receives most valuable illustration from the materials of the Courts of the Crystal Palace at Sydenham.

When the reader has become familiar with the principles set forth in the following pages, and tests modern works by them, he will readily discover that most of our modern edifices, when not mere copies, have been designed in almost utter ignorance of the laws that guided the artists of antiquity and the middle ages. If these pages afford a clue to the artist in his study of the models of the past, so as to enable him to originate works for himself worthy of comparison with them, the object of this little book will be fully attained.

EXPLANATION OF FRONTISPIECE.

GENERIC FORMS.

A. Straight Line and Cube.
Z. Curved Line and Sphere.

PRIMARY FORMS.

Straight Lines.	*Curved Lines.*
B. 1. Cylinder.	C. 1. Spheroid.
B. 2. Conoid.	C. 2. Ovoid.
B. 3. Clavoid.	C. 3. Ogivoid.

MIXED FORMS,

Participating of the Cylinder and the Sphere, the curves being directed inwards.

D. 1. Canopian.	E. 1. Phocian.
D. 2. Napiform.	E. 2. Lacrimiform.
C. 3. Turbiniform.	E. 3. Pyriform.

MIXED FORMS,

Participating of the Cylinder and the Sphere, the curves being inclined outwards.

F. 1. Corolla widening from the upper third.
F. 2. Corolla widening from the lower third.
F. 3. Corolla widening from the upper third and narrowing from the lower third.

CRATEROIDS,

Having a Breadth of two to five times their Height.

G. 1. Segmentary Crateroid.
G. 2. Crateroid of five heights. Canopian.
G. 3. Crateroid of three to four heights. Campanuliform.

DISCOIDS,

Having a Breadth of at least five times the Height.

H. 1. Segmentary Discoid.
H. 2. Canopian Discoid. Torus of the Doric Capital.
H. 3. Tectiform Discoid. Covers, Feet of Vases, &c.

STEMS,

Having a Height of more than three times the Diameter.

J. 1. Stem widening from the upper third.
J. 2. Stem widening from the lower third.
J. 3. Stem with double curve. Campanuliform of double curvature.

CONTENTS.

INTRODUCTION.

A love of ornament seems inherent to man's nature; the character of his ornamentation is mainly dependent on the amount of civilization and refinement he enjoys.

In the savage state he tattoos his skin, deforms his features, paints his body, and decks it with flowers, feathers, shells, &c. He next extends this ornamentation to his weapons and utensils: his calabash and tomahawk are tattood like his body: the ornamentation of the New Zealander and the South-Sea islanders, with other savages displays great taste and skill.

In the pastoral state, the shepherd, while tending his flocks and herds, seeks to beguile the weary hours by ornamenting the staff of his crook with carvings symmetrically disposed, and pleasing to the sight, by which he expresses his instinctive feeling for ornamentation, subsequently extended to other things. Ornamentation is superadded to utility.

The denizen of the valley kneads the clay, and models an utensil; he dries it in the sun, or bakes it in the fire, and fetches water in it from the distant spring In the first essays of his intelligence and activity, the forms he produces will probably be imitated directly from the models supplied by nature, such as the shell or the gourd.

But soon his *artistic* faculty is developed; he adopts certain proportions of height and breadth; he mingles the curved line with the straight in suitable proportions, adds handles, and lo! a Vase is produced. The utility of the utensil for its destined purpose remains, the alterations introduced have not impaired its unity, and a work of Art is the result.

In genial climes, the dwelling man originally provided for himself was of minor importance; he constructed it simply and rudely of wood: but on the temples dedicated to his Gods, constructed of the more enduring stone, he lavished all his skill and taste.

The roof that sheltered his family rested upon pillars formed of the trunks of trees: in the temple, these pillars become columns. Marble replaces wood: bronze in sheets is substituted for the bark or tiles which covered the rafters. On the stones of the temple, he carved in relief, processions, dances, victories, &c., the admiration of future ages. Then arose Sculpture, the new product of a new art.

The house was a shelter, a simple fact—the temple, the work of a higher intelligence, is a work of Art. Architecture unites with Sculpture as theory with practice. To Architecture all the arts of imitation and ornamentation are allied.

The *Ceramic*, or potter's art, (from the Greek *Ceramos*, clay), receives its name from a quarter of Athens where Corœbus invented and established the art of working in clay. A street in Athens was called Ceramos, from the name of Ceramus, son of Bacchus and Ariadne. Besides Athens, the cities of Corinth, Ægina, and

Samos, celebrated for their architecture, were equally renowned in the remotest times for ceramic productions.

Before the time when Demosthenes ruled the Athenians by his divine eloquence, before Phidias created his immortal types of perfect beauty, or his rival Apelles had attained to the pinnacle of art environed by a glory more durable even than his works—there existed at Athens a feeling of devout admiration, and perhaps of gratitude, for the ancient art of the potter.

The portion of Athens we have named was the first school of taste, the primitive sanctuary where abstract form unceasingly elaborated and studied under the eyes of an inquisitive and free people, was revealed to the first architects. It is the Ceramic art that inspired the authors of those antique structures, which, renewed at a later date with the marbles of Mount Pentelus, became temples worthy of the Gods to whom they were dedicated.

The souvenirs of these primitive times are effaced: the Greeks, vanquished by the Romans, transmitted, of all their arcana, only the sight of their works. After so many ages have passed away, these precious remains appear to us like the tables of a mysterious law, which succeeding generations believe they understand because they measure the structures. We are told—such and such are the proportions of a Greek order, there is our guide, such is the law: but we are not told from *whence the law-giver derived his measures:* from whence came to him so pure, so perfect a taste, or from what source he derived the feeling and sentiment displayed in his works.

It may be asserted that the existence of a centre of Ceramic productions amid the Athenians prepared the way for their superiority by exercising their taste: and if the names of celebrated potters have been carefully handed down like those of architects, it is because the works of the one are allied to the works of the other by a community of principles.

Let us now examine the analogy of these principles and of the laws of proportion in each of these arts, bearing in mind that they are practised a hundred times a day by the potter, while an architect really puts them in practice but a few times in the course of his life; and we shall then discover from which side the influence has come.

The Ceramic art is the art of *inventional* forms, and analogy of principle also unites this art to Architecture. It is by studying ceramic forms that we arrive at the production of *new* forms, and wherein, consequently, we may find the rudiments and basis, of a new and national architecture. A problem that has been vainly attempted to be solved by the moderns as well as by the Romans.

The laws of proportion, of symmetry, of ornamentation, of utility even, are common to each of these arts. In respect to invention, they derive it from a feeling which particularly distinguishes them and makes them identical.

Here imitation of nature is only a starting point: its productions present only a germ, a theme to the imagination, without being, as in painting and in sculpture, (IMITATIVE ARTS *par excellence*,) the essential object.

It appertains to the artist to discover this germ, and fructify it by ingenious developments. But whatever be the invention, the purity of the contours or the richness of the ornaments, it is to general laws that every work of this nature we would compose must be submitted.

So far from considering *utility* as foreign to æsthetics, we must make it the basis, the exponent so to speak, of works of art.

Thus, a vase, whether it be of gold, silver, marble, ivory, clay, or glass, must have the power of *containing*, otherwise it is only a deceitful appearance, a work without object. A vase, even if it is never utilized, must be capable of being useful. An edifice without an object, one into which we cannot enter, that is useful neither to the living nor to the dead, fails in the chief of architectural conditions.

Equilibrium and *stability* are also laws of beauty and durability. *Solidity* is a principle of art; strength does not exclude elegance, it is not even incompatible with lightness, from which results a kind of beauty.

The harmony of the different parts of a whole, and the suitableness of its poportions are sometimes the effect of a happy accident, *but always a necessary result of certain laws*, which it is the object of these pages to unfold, and then apply the principles of analogy to the works of those great architects who, without models, constructed edifices which we can now only measure and copy.

THE

PRINCIPLES OF ORNAMENTATION.

Although Ornamentation is the Art most diffused in society from the remotest fabulous times down to our own days, dating from the sculptured crook of the primitive shepherd to the enamelled cross of Limoges, from the hut of the Indian to the New Palace of Westminster —it is an art the history of which is scarcely recognized or its scientific principles yet analysed. Wherever man appears on the face of the globe, there ornament appears with him. His flint axe, his pike, his crook, he covers with carvings, and we cannot say that he had even thought of a vestment before he ornamented his wife with vividly coloured feathers, necklaces of shells, or with glittering bands of metal. Himself he decorated with ingeniously devised tattooings.

The faculty of creating ornaments, of making a fire, of speaking, and of clothing himself, are evidently the first signs of intelligence which distinguishes man from other animals.

The History of Ornamentation is the history of the

human race under every phase of humanity. To undertake this vast subject, (for which Homer himself furnishes materials,) forms no part of our present plan; in this place we must limit ourselves to seeking to discover the laws which have presided, consciously or otherwise, in the best works of ornamentation, to study those laws, and deduce conclusions from them useful to the progress of the arts.

The first step is to establish a

GENERAL CLASSIFICATION OF ORNAMENT.

Considering the subject of ornamentation from the most general point of view, we distinguish three kinds of ornaments.

1. That which is exclusively the work of the imagination and of the creative instinct, without analogy with the productions of nature. This is the *Inventional.*

2. Ornament derived exclusively from sources of animal and vegetable life. This may be called *Imitational.*

3. A *Mixed* ornament formed by combining the two others.

Lastly, there results from the *superposition* of one on the other, as for example, in an entablature, a *Composite* ornament.

I. INVENTIONAL ORNAMENT.

The word *inventional* sufficiently indicates from what source—the intelligence of the artist—we must refer this class of ornament, which certainly merits the first consideration, both from its origin and from its connections with architecture and pottery. In this class,

imagination, taste and fancy open to man the most beautiful and most difficult career, that of creation.

The most remarkable Inventional ornaments of antiquity are meanders, plaitings, astragals, flutings, waves, labyrinths, &c.

We may also regard as ornaments, modillions, dentels, guttæ, triglyphs, and mutules, the fine effect of which has no connection with *imitation*, from which it is commonly supposed they are derived. The Greeks ornamented the antefixæ of their temples with a very capricious variety of palm-leaf which strictly belongs to *inventional* ornament.

The Byzantine epoch is no less rich ; the ornamentation of the archevolts presents us with the undulating chevroned torus ; with foliated and flowered columns, which are banded, contorted, and chiselled with a thousand fancies. Diamond points, chequers, nailheads, bezants, nebulæ, serrations, stars, &c., replace, in this architecture, the Greek and Roman modillions and dentels. The strange enlacings of the churches of Norway, at Urnes, Find, Hitterdall, Borgund ; the sculptures of the cloister of Arles, of the baptistry and the white marble pulpit at Pisa, although far apart, are none the less of the same nature. In other climes, in Mexico, in Yucatan, we find the ruins of mysterious cities of which no history exists. In the midst of these ruins, monuments of an incalculable antiquity are covered with sculptured ornaments of most bizarre *invention*. The remains which bear the names of Uxmal and Labnah, are a mass of inventional ornaments.

The beautiful ornamental mosaics of the churches of Sicily and Italy belong to the Byzantine era.

In the Middle Ages, the magnificent details of the Gothic style, their rich filagree, the complicated and resplendent rose-windows of coloured glass, the open galleries and corridors, the lanceolated foils, the trefoils, the quatrefoils, the fleurons, crosses, &c.: are the inventional ornaments of the Christian cathedral.

No less numerous, varied and ingenious are the ornamental compositions of the Moors of Granada; of the Alhambra, of Seville, Cordova, Tarragon, Cairo, Tunis, Alexandria, &c., &c.

The tiles with great interlacings upon blue grounds which form the pavement of the Loggia of the Vatican at Rome, the ornaments of the Bible of Charles the Bald at Paris, although distinct in several conditions, greatly resemble the ornamentation of the Moors. Such are the great cycles of *inventional* ornamentation.

We may also add to the class of inventional ornaments the fantastic piers, the inverted cartouches, the indentations and varied contortions of the Pompadour style, of which Michael Angelo was the parent. The once universal success of this style in Europe continues to the present day in the East. These despised and condemned ornaments, have been consigned to the flame and the wave, to the claws of the lion and the hoofs of the ass; but the time to appreciate them has not even yet arrived. This ornamentation, the remains of which we discover in the fine old churches of Germany—at Munich, Dresden, and especially at the royal residence of Schleissheim, this ornamentation which constituted one of the charms of Venice, when Queen of Civilization as well as Queen of the Sea—to be fully appreciated requires the time that

has been accorded by Providence to the Gothic style, which has scarcely escaped discredit even in our own days.

Mosaic. Considering Mosaic only as ornament, we see that the architects of the churches of Sicily and Italy have obtained marvellous embellishments from it. Vaults, arcades, tribunes, thrones and pavements exhibit the richest and most varied employment of this indestructible ornamentation.

Whether, as some suppose, the first mosaics were formed of nails of different colours, or whether they resulted from purely geometrical combinations, this branch of art has produced most astonishing ornamental conceptions. In Spain, at the Alhambra of Granada, at the Alcazar of Seville, &c.: in Africa, at Cairo, at Fez, are master-pieces built and chiselled by the Moors. These incomparable architects have still worthy successors on the African soil, where the Mahometan religion interdicts imitational ornament.

II. IMITATIONAL ORNAMENT.

Animals, plants, and the human figure, have each furnished ample materials for ornamentation.

The most ancient remains of Greek ceramic art are covered with historical scenes and personages, derived from mythology, the Iliad, and even from the time which preceded the Homeric poems, the legends of which are lost to us.

Next to the human figure, the acanthus leaf has been the most wide spread ornament from the days of Calli-

machus to the present time. Leaves variously repeated, the imbricated, the aquatic, the ivy, palmettes imitating pine-apples, &c., &c., compose, with the human figure, the sober and grave collection of the ancient ornamentist.

In the Middle Ages, the leaves of the trefoil succeeded the acanthus; the vine, the hop, the mallow, the leaves of aquatic plants, those of the hill and of the valley, occupy a place in the friezes and capitals which adorn gothic cathedrals: the myriads of saints, the trembling sinners delivered over to infernal spirits, arrayed about the deep curves of the porticos of cathedrals, are nothing else than ornaments of *imitational* origin.

Later, at the time of the Renaissance, nymphs and naïades, fruits and flowers, appeared with Diana of Poitiers, Jean Goujon, and Benvenuto Cellini. Ornamentation became greatly degenerated when it adopted as imitational forms heads of satyrs pendant from swan's necks, or from flower-stems. Even the acanthus has been subjected to abuse, we have seen it employed as an accompaniment to bearded fauns and satyrs.

One of the finest examples of imitational ornament extant, is that of the columns of the principal bronze gate of the Cathedral of Pisa. Nothing can be more charming or more true to nature than the festoons of fruit, leaves and animals; yet this masterpiece is unappreciated.

Works of excellence in imitational ornament, are by no means numerous. Among modern ornamentists the most eminent are those of France and Germany. In the first, Duchesne is the most skilful, in the second, we find the names of Schrœter, Neureuther and Fries. Our own country supplies no greater works than those

of Grinling Gibbons (a Dutchman), but he belongs to the past rather than to the present, which possesses a rival in Wallis of Louth.

III. MIXED ORNAMENT.

The ornament *par excellence* is the Inventional. Imitation of nature constitutes an ornament, the title of which sufficiently expresses its origin. By means of certain fictions, lines and inventions, which fashion nature by combining imitation and invention, we produce *mixed* ornament, and no axiom is more true than that of Theophilus: "However well the lines of demarcation be traced, something capricious always escapes the category."

The echinus of the Corinthian cornice is a very simple type of the mixed ornament: a well imitated egg alternates with a dart and two purely inventional curves. The ornamentation of a frieze also, may, at the option of the sculptor, cease to be imitation of foliage without ceasing to be a beautiful ornament; human figures, animals, birds, may be added, and so compose what we call *mixed* ornament.

In this manner, with the addition of some carving, arabesque ornaments may be mingled with natural leaves to form a mixed ornamentation. Byzantine capitals often exhibit the example of birds mixed with enlacements which form a *mixed* ornament.

If, to gothic tracery we join angels, flights into Egypt, scenes from the crusades, processions, &c, a mixed ornament full of charm will result. The sculptures of many of our own and of continental cathedrals afford examples.

Finally, we may rank among mixed ornaments a part

of the so-called Renaissance inventions, but which in their principal models are derived from the Baths of Titus and the arabesques of Raphael. In this elegant kind of open-work, human figures, birds, chimeras, &c., mixed with foliage, exhibit purely fantastic convolutions.

In ornamentation fancy is liberty.

Provided this liberty be maintained with good taste, and do not degenerate into absurdity, fancy is the first qualification of the ornamentist.

If in a piece of architecture or in a ceramic work we superpose different classes of ornaments, the result is a *composite* ornamentation.

IV. COMPOSITE ORNAMENT.

One of the finest examples extant of this kind of orna ment is the Maison Carré in the city of Nîmes, built in the time of the Romans, by Greek architects, who, masters of *eurythmy,* were the depositaries of the purest traditions of analogical proportion. The flutings and lions' heads, and annulets and aquatic leaves, the modillions ornamented with foliage and geometric dentels, the ovoli and principal ornaments of the frieze unite in the most eurythmic combinations to the splendour of a whole, which may be submitted as the most perfect model of *composite* ornament extant. The capitals of the columns at Nîmes were worthy of the homage of the Greeks of Phigalia and Corinth.

The ornamentation of the Ceramic art is generally composite: some lines of inventional ornament are developed on the edges, necks, collars, and shoulders of a

vase. In the centre, we find figures and imitational ornaments: flutings, enlacings, annulets, and radiating lines, occupy the base, foot and all the lower parts.

The Corinthian entablature comprises all the perfections of composite ornamentation; it would be superfluous to give other examples; but the Corinthian is derived from a severer order, the Doric. The Doric order itself owes all its beauties to one of the fundamental laws of ornamentation which we shall attempt to explain hereafter—to *eurythmy*.

PROPORTIONS.

It is understood that a straight line prolonged in space, without beginning or end, gives the idea of infinity in length; that if this line be developed in breadth there results an infinite surface; that if to this surface we add an infinite thickness, we shall have the three terms of infinity—length, breadth and depth.

These three terms are what we call *dimensions*. The human mind cannot comprehend more than three general dimensions. In the cube, each dimension being limited by two surfaces, the three dimensions produce six surfaces.

In this example, the relation of the surfaces are what we call *proportions*. Thus there is a perfect equality between the proportions of the six square surfaces composing a cube. Every difference is also a proportion,

and language has terms to designate these differences. The relations between length, breadth and depth, in primary forms—the relations between the different parts of mixed forms—the equality or diversity between the different members of a composite whole, constitute what we name *proportions*.

Our design being to indicate the proportions from whence result beauty in pottery and in architecture, the particular principles which appear to govern each of the categories of primary, mixed, and composite forms will be explained in the following chapters.

The general principles may be described in this place.

THEORY OF PROPORTIONS.

In certain *primary* forms, as, for example, cylindrical vases, conoids, clavoids, towers, quadrilateral edifices, &c., in which the height exceeds the breadth, the proportions consist in a relation of height to breadth, such as the height being thrice the semi-diameter at least, and three times the diameter at most.

If, on the contrary, the breadth exceeds the height, as in Greek temples and most other edifices, this breadth must be from twice the height at least, to five times at most.

In *composite* forms, in all ceramic and architectural compositions, good proportions result from a union of all the equal or symmetrical parts in the direction of the breadth, dependent on a mass which governs them by its volume and importance, and to which they attach themselves in *unequal quantities* in the direction of height; so

that from one side to the other, there is symmetry and equality, and from top to bottom, inequality, hierarchy and diversity ; in every direction *unity*.

By *hierarchy* is meant the harmonious distribution of unequal parts ; this word, already employed, requires a special definition.

These *unequal quantities* have themselves a law which governs the fractions ; we obtain them by dividing and subdividing by the number three, the different superimposed members of an edifice, a vase, &c. From this mode of division and subdivision results *hierarchical* relations which constitute variety, order and unity ; that is to say, the most satisfactory proportions. Thus a Greek temple divides itself at first sight into three distinct parts, namely, the entablature, the colonnade, and the steps. The body of the temple clothed with its columns is what I have termed the "mass which governs the other members by its volume and importance." To this mass the entablature and steps attach themselves.

The entablature is subdivided into three unequal parts, the cornice, the frieze, and the architrave.

The steps also subdivide themselves into three parts, which perspective renders sufficiently unequal.

The architrave and the cornice are each in their turn subdivided into three unequal bands. The columns themselves have a capital, shaft and base.

The shaft, taken simply, without base or capital, is by analogy mentally divided into three regions. Thus when the upper part of the columns is channelled, it obviously commences from the first third of the height. When a console, (which happened only at the period of decline in

art) intended to support a statue is fixed to a column, as in those of Palmyra, this console is placed at the summit of the lower third. In the library of the Vatican, there is preserved a column with a salient console placed at the summit of the second third of the shaft. Lastly, in swelling columns, however vicious the swelling may be, it is only admissible when the diminution begins at the lower third.

We see also, that each column corresponds virtually to three triglyphs, each triglyph corresponding to three mutules, and is subdivided into three fillets. These relations, depending upon *eurythmy*, deserve to be noticed in this place. Division by three, is a mysterious law, inscribed on the most beautiful models of triumphal arches, pedestals, vases, &c.

The human body, that masterpiece of crèation, presents us with a model of symmetry in breadth. From right to left eye corresponds to eye, arm to arm, foot to foot, while in the direction of height, all the divisions are unequal.

The trunk governs the other parts by its bulk and importance ; the arm is divided into three parts, the arm, fore-arm and hand. It is the same with the legs. In the region of the face, the nose and the mouth also divide the visage in the most varied manner, and the middle is indicated by the requirements of a law, which will be explained hereafter. In an edifice, the façade and the sides are clearly indicated. Who can fail to recognize in all this the great law of analogy and proportion, as well as the law of suitability or fitness.

LAW OF SUITABILITY.

We comprehend, that from an hierarchical division, there results variety, order and harmony: but as primary forms bear only the simple relations of breadth and height, the determining *motif* of the unequal relative quantities, has not so evident an origin. This origin we shall find in the law of suitability.

Suitability or fitness, is a state of form which permits us to seize at the first glance, the differences between the height and breadth, between a façade and its sides. The indication of the middle is also a dependence of this law. Too little regarded in our edifices, the law of suitability was perfectly understood by the architects of the antique temples, as in the Parthenon, the great temple of Pæstum, &c. The breadth of the façades of these structures, is double their height, the lateral length is four or five times the height. These relations render the differences in their dimensions so evident, that no doubt on this head can exist in the mind of the spectator. It is a free, loyal and satisfying expression, from whence beauty results. Some ancient, as well as modern architects, have not taken sufficient account of this important condition of beauty.

The Greeks, in their finest works, have carried the feeling of this law (which is unknown to us,) to the point of distributing their columns in unequal numbers on the sides, in order to establish a greater difference with the façade, the columns of which are, necessarily, in even number as required by the doors of the temples.

Generally, the architrave formed by the inclined lines of the roof, is an admirable crowning to the portico ; it derives a portion of its value from the expression which it gives to the edifice, in indicating not only the façades, but also the middle of these façades.

If the architrave raises itself too much at its summit, approaching the equilateral triangle in shape, it loses its expression ; an architrave is so much the more beautiful, as the lines of the side differ more *palpably* from those of the base, up to a determinate point, where the pyramidal effect ceases.

The law of suitability alone can account for the beauty resulting from depressing the architrave. In cold climates the feeling of comfort leads man to prefer high pitched roofs, which quickly carry off the rain and snow ; nevertheless, this vivid feeling is combatted by the evident beauty resulting from lowering the architrave ; so powerful is the influence of suitability in producing beauty.

To distinguish the anterior from the posterior façade, the Greeks placed acroteria on the former ; such as statues, sphinxes, bucklers, &c.

It is in virtue of the law of suitability, that in the ceramic art, a flattened spheroid is more agreeable than the sphere ; for the same reason, a regular ellipsoid or oval, will please less than an ovoid ; if this truth was not proved by a thousand examples in human works, it would be by the works of the Creator, by the contours of a handsome face.

We exclude the geometrical cube from beautiful forms, because it has no expression. We consider the square an ungrateful form destitute of expression, which should be

reserved for pavements—a picture equal in breadth and height, is in false proportions, whatever may be its merit besides, as a picture; it is the same with the doors and windows of an edifice.

We do not admit a cylinder of equal height and breadth among the number of beautiful ceramic forms. Except in pavements, the square is employed in architecture only as a corrective; thus, a lofty door, having a height of four or five times its breadth, gains, by being ornamented with square panels, which influence the sight by opposition and repetition. It is the same with the metopes spread over the frieze of the Doric order; the effect of the square metopes further increased by the interposition of the triglyphs, cuts agreeably, with a sort of cadence, the long band of the entablature.

Here also the square form, subjected to the whole, produces its effect by opposition, and as a corrective; it derives expression from repetition.

It is also by opposition, as corrective, and in view of contrast, that the salient gate upon a long wall, or a projecting bay in a gallery, may be of equal breadth and height, and produce a good effect in the whole. Even square windows sometimes produce the agreeable effect of metopes, in edifices where the round form predominates.

The proportions of an opening may be:—

1st. Relative to its height, compared with its breadth, whatever that may be.

2nd. Relative to the dimensions of the edifice itself, but that the lines, angles, and shadows which give to it a special figure, independently of its proportions, make

this bay an eurythmic member, contributing to the decoration of the whole, that is to say, to eurythmy.

MORAL FITNESS; OR, SUITABILITY OF STYLE.

We have said that *suitability* was a condition of material form, which permits us to seize at a first glance, the difference between breadth and height, between a façade and its sides, &c.

The feeling to which this kind of beauty addresses itself, leads us to wish also, that every work in architecture or pottery, had an aspect and condition of form in connection with the object of the work, so that this object would be evident at first sight. This valuable quality we name *moral* fitness.

What is the moral sentiment of gothic architecture? It is eminently religious, and we would wish to see it exclusively devoted to Christian churches.

The Greeks created three orders of architecture for stone. Each of these orders—the Doric, Ionic and Corinthian, has a moral sentiment, an evident suitability for three different purposes.

The Romans wished to create an order, which they called *Composite;* in this, they were unsuccessful, for the changes they made in the Corinthian, in order to create this composite order, amount only to a few insignificant modifications: on the other hand, what the Romans have called denticular doric, appears to be a creation entirely their own. The capital, with ovolo in quarter circle, is the most successful of all the attempts yet made to create an order, since the time of the Greeks. The annulets of the fillet, with carvings

on the neck, form an eurythmic compound worthy of the Greeks, which would merit the name of Roman Order, if the column had not been made to swell out of all measure; its place would be between the Doric and Ionic.

FORM.

Form is an abstraction, a mode of existing, or of appearing either to the imagination, sight or touch. In a material point of view, all possible forms may be resolved or decomposed into straight and curved lines, of which the cube and the sphere are the most evident summary.

The potter's art presents an innumerable variety of forms, which may be divided into three classes, *simple* or *primary*, *mixed* and *compound*. We shall consider form in the potter's art, only as contour or elevation in profile; the section through the diameter, or horizontal section, we always suppose to be circular, such as is produced by the potter's wheel. Thus a cylinder of equal height and breadth, is the representation of the cube, of which it presents the profile, and reciprocally, cylindroids and spheroids are *primary* forms.

The *Canopian* form and its derivatives, the *Phocian* form and its derivatives, with *Corollæ*, compose the series of *mixed* forms: that is to say, are produced by the mixture of the sphere and the cylinder.

When various superimposed forms concur together in a vase, we call it *Composite*.

The cube, the sphere and the cylinder, appear to be the starting points of three different modes of execution in the arts.

The *cube*, eminently geometric, is the type of all the quadrangular and architectural forms to which are applied the laws of proportion we propose to establish on the subject of primary forms. The cube symbolizes architecture, either in the *ensemble*, or in the details of constructions, from the general plan, to the crude figure of the smallest stone.

The *cylinder* is more especially appropriated to ceramic forms. Only practice leads to this conclusion. We see potters, at least the most skillful of them, as soon as the wheel is in motion, hollow out the plastic clay, and shape it into a cylinder more or less elongated. The regularity and boldness of this operation, which precedes the modelling, are signs by which we recognize the renowned workers of various fabrics. It is the straight line of Apelles divined by Protogenes. The cylinder afterwards loses itself in a thousand inflexions: it may rise like a column, spread like a flower, be rounded like the festal cup of the ancients, depressed as in the sepulchral lamp, or spread out to flattening in various discs, and there the art of form ends.

The sphere, on the other hand, seems the original type of the works of the glass-blower. His vase takes its birth from a bubble of air, which spreads itself in an incandescent tear; the bubble produces a sphere, the sphere submits to an infinite number of modifications. It may even become a cylinder, the form of which, may,

in its turn, flatten and vanish in a plane and transparent leaf.

We cannot, in this place, enter into the question of beauty. Its discussion would far outspread our limits. It will form a separate treatise, entitled "The Principles of Beauty in Art."

THE STRAIGHT LINE AND CURVED LINE.

"Points form lines, lines form plane figures, from whence proceed solids, from solids, bodies which have four elements."

The laws of gravity and stability, render the employment of vertical lines indispensable in architecture. The arrangement of the interior divisions generally requires plans composed of straight lines and right angles; nevertheless, a law of our nature, the *law of contrast*, perhaps, or of *variety in unity*, leads us to consider the mixture of straight and curved lines as a condition of beauty; it is by a happy union of one with the other, that the master-pieces of architecture and of the ceramic art have been produced.

Directing our attention to the finest productions of man, we see edifices composed of straight vertical lines cut by great horizontal divisions; but soon we feel the influence of the curved lines in the columns, capitals, volutes, consoles, arches, &c. The circular form of the columns has then for its object the making a pleasing contrast between the horizontal curved line, and the straight lines and right angles which surround it on all sides. Statuary, which represents the varied forms of living nature, is called in to make undulating and spiralescent

curved lines intervene among the rectilinear surfaces and projections. Through this happy union, temples, cathedrals, palaces, porticos, &c., excite and merit universal admiration.

One condition of beauty then exists in the mixture of straight and curved lines—*in variety added to unity.*

Unity is the symbol of all beauty. This principle is fruitful in results, for it comprehends *variety in unity.*

If in another art, we consider the profile of the composite vase, to which the generic name of *Medician* is given, we shall quickly recognize the happy influence of the straight and the curved line. This vase, in the lower third portion of the corolla that forms the body, is cylindrical, while the base is an ovoid cratera, the whole resting upon a square socle, with perpendicular sides. Independently of other qualities, by this intelligent mixture of straight and curved lines, this Composite form will for ever remain one of the types of beauty in ceramic art. We shall soon establish, that the more the straight line dominates, the more the work is susceptible of being regulated by fixed principles, correct measures, and fixed proportions. On the other hand, the more curved lines abound, as in the human figure, the more the infinite variety of forms present uncertainty as to the exact point where beauty resides, the type of which can be unique only by being ideal.

The straight line is *one,* the variety of curved lines is *infinite:* nevertheless, curved lines may be divided into three primary curves: the simple curve ; the undulating ; and the spiralescent—at once both undulating and convoluted.

The spiralescent is that great invisible line which is the soul of a simple action in the beautiful antique statues. It is this line that has inspired Leonardo da Vinci, in his "Treatise on Painting," when he says: "Never place the head straight in the middle of the shoulders, but always turned a little to the right or to the left; this is necessary, in order to produce an attitude that will appear a motion of life."

Hogarth has given to this line of grace and beauty the name of *serpentine* line, and he has shown the agreeable effect of it, not only in the whole, but also in all the details of a statue and of the human figure. If we consider the line described by the motion of the serpent, we see that this line is a series of undulations. If the serpent enlaces a cylinder, cone, or tree, it describes a helix, the contour of which is impossible to human nature, and as the serpent excites a feeling of horror rather than of admiration, the word serpentine is not the expression for this great line, which produces the fine turn of a statue; for nature does not permit the head, in its ordinary motions, to turn beyond a fourth of its circumference, either to the left or the right. This torsion, which is the result of life and action, comprehends the different degrees of spiralescence, which form one of the conditions of beauty in the pose, attitude, and *tournure* of living and intelligent beings.

The curved line mainly distinguishes the parts of bodies endowed with life; the undulating is observed in their *ensemble*, the spiralescent in their motion, while the straight line seems to be the impalpable result of the immaterial faculties or properties of bodies in general.

Thus, from the spheroidal eye, visual rays escape in straight lines:—

The earth is a spheroid, but the attraction it exercises acts in straight lines. The solar body is spheroidal, but it projects its rays in straight lines.

The most perfect curved line is the circle, its composite expression is the sphere; each is, and can only be comprehended within a limited extent, a within and a without. Consequently, a circle cannot be infinite; the heavens cannot be spherical.

The straight line, on the contrary, can be comprehended without difficulty, as infinite in length; prolonged in space, it has neither beginning nor end. When we imagine this line, which has only infinity of length developed in breadth, we shall have a surface infinite in length and in breadth. When to this surface we add, in thought, an infinite thickness, we shall have the three terms of infinity—length, breadth, and depth. Such is Space.

PRIMARY FORMS.

I. CYLINDROIDS.

The cylinder is a form with perpendicular sides upon the circumference of a circular base.

From numerous observations upon the most suitable proportions for a ceramic cylinder, we have adopted, as a principle of beauty and stability (common qualities), certain optional proportions, which are, that the height must be at least three times the semi-diameter or radius, and three times the breadth, or diameter, at the most.

In architecture, we can apply this principle to pedestals, hemicycles, monuments, and circular interiors. Thus, an hemispherical dome, having a height equal to one-half its breadth, may be elevated above the ground from three to six times its diameter.

The choragic monument of Lysicrates, at Athens, is a cylindroid, having a height twice that of its diameter, measured externally, from the base of the columns to the summit of the entablature, under the cymatium of the cornice, part belonging to the roof. This monument rests upon a base, whose total height is just three semi-diameters.

When a series of conscientious observations in one art is confirmed in another by monuments belonging to the most beautiful period in the history of the human race, this agreement merits great attention, for it reveals the presence of analogical laws, the same principles of beauty.

If, from a general point of view, we consider the proportions of crateroids (Frontispiece), we may comprehend, without difficulty, that an edifice seen in elevation in profile, the diameter of which is from twice to five times its height, may be compared to a crateroid, and that ceramic proportions are, at the same time, architectural proportions.

The Temple of Pæstum presents the most perfect example of the extreme proportions we have assigned to crateroids; if we look upon the façade, its breadth is twice its height; and if viewed laterally; it still presents a perfect example of the proportions of a crateroid, having a breadth of five times its height, and without including in the height either the width of the cornice,

which seems to form part of the roof, or the steps, which form part of the pavement.

Subsequently, and conforming to the same law, the architects of the Parthenon gave to the façade a breadth of twice its height, and they added to the expression by including the steps and cornice in the height of the edifice. The exactness of these relations leaves no doubt of the existence of the principle, formulated in a general manner, and applied with a certain individual independance by each architect. These differences in application, confirm the principle more than the rigorous identity established by copyists.

In the Parthenon, the lateral angles of the architrave clearly indicate that the roof and the cornice are distinct beyond the lion's heads for carrying off the rain, which designate the thickness of the roof upon the sides. These two different parts are clearly separated, but the moderns have generally confounded them under the name of cornice, and have employed them simultaneously in the decoration of interiors.

When the breadth of the façade of an edifice exceeds five times its height, its proportions may be compared to a discoid (Frontispiece). The width of façades should never exceed five times their height; if the façade is wider, it will be found necessary to cut it by projections of different form.

To continue the analogical analysis of architecture and the Ceramic art, we may compare lofty towers, the height of which, exceeds three times the diameter, to Ceramic stems (Frontispiece). In the Ceramic art, a stem is only possible with a base, a support; but in architec-

tural masses, in which opposed external agents cease to be a cause of displacement or overthrow, the base is supplanted by the weight of the edifice itself, which opposes the action of the atmosphere, as certain isolated blocks from the same cause resist the action of the sea. The enormous weight of towers, belfries, obelisks, triumphal columns, &c., re-assure the spectator by the idea of an immoveable mass, while the reduced models of the same structures, have a barren and uneasy aspect. Barren, since they are deficient in the principal merit, that of volume—and uneasy, from wanting the stability resulting from size.

Beyond a certain volume and weight, beauty ceases with the strength arising from large dimensions; in this case, an evident point of support must re-assure the spectator, either under the form of a base, or by attachments which will be a source of ornament, apparently useless, but of real value.

Columns are not cylindroids, but conoids; yet some architects, Roman and modern, have frequently given them a cylindrical form in their lower third, for insufficient reasons, which completely ignore the columns of the best antique period. This rupture of the simple line, owes its origin to the employment of monoliths of valuable materials. As in a purely conoid column, the diameter of the base implies an enormous cylinder, the monoliths fail in this development; and in process of time, this defect has come to be taken for a rule of art.

On the other hand, gothic cathedrals present us with a thousand examples of the cylindrical stem, from which they derive one of their chief characteristics. Here the

cylinders are grouped and superimposed, rising from the ground to the vault, where they expand into elegant ribs. The clustered columns of our cathedrals, reminds us of minarets in Oriental regions, bold cylinders rising from earth to heaven, from whence, doubtless, the gothic style is derived.

The cylindrical form is rarely met with in the pottery of the ancients. A few specimens are found in museums. It is little used at the present day, notwithstanding its simplicity, and, probably, on account of its simplicity.

II. CONOIDS.

When the diameter of a *cylindroid* is less at the summit than at its base, it is termed a *Conoid,* whether it be circular, octagonal, or square; we only regard the section. We may consider the *conoid* as the symbol of stability in architecture, and in the ceramic art. The column of Pæstum is the most striking and best known example.

The Egyptians have bequeathed us admirable monuments with inclined sides in the pylones of Philæ, the great temple of Edfou, the temple of Dandour; to this form, is correctly attributed immense durability.

Besides its qualities of strength and resistance, this inclination has an aspect that charms, but the effect of which, we cannot analyze. Nothing can be more charming than the conoid towers of Civita Vecchia, whose base is washed by the sea. The angle of incidence tends to disperse the rays of the sun, which appear to be at once more luminous and softer reflected by these walls, the asperities of which cast no shadow, and whose inclined

masses receive in the shade an azure hue from the reflections of the sky.

From measurements recently made, the Parthenon itself presents to the eye of the attentive observer this wonderful peculiarity—that its walls are inclined inwards, and that the axis of the columns has a similar direction ; so that instead of being a structure with perpendicular sides, it may be regarded as a conoid, the lines of which, being prolonged in height, would unite at a common summit.

Under all these relations, the Doric column is an admirable model of the conoid ; but, to analyze it, to prove the principles of its dimensions and beauty, we must go back to primitive sources, and establish the proportions of the ceramic conoid.

In virtue of the law of suitability, and of the principle of variety in unity, a conoid of equal breadth and height, has a more satisfying appearance than a cylinder of similar proportions. The breadth of the conoid is the mean term between the base and the summit. It is easily found, by adding together the extreme diameters, the total divided by two, is the mean diameter. The necessity for potters to calculate before hand the contents of a vase, obliges them to reduce their conoids and clavoids to the cylindrical form, by taking the mean diameter. This practice has certainly been adopted by the Athenian architects, and it will be soon shown, that the mean diameter is the starting point, not only of the shaft of the column, but of all the dimensions, proportions and measures of the edifice.

We see of what importance this discovery is in archæo-

logy, in architecture, and in proof of the primary relations between the Ceramic art and architecture. The Romans, not aware of the mean diameter, never possessed the key of the Athenian proportions. Their model, the conventional model (the semi-diameter of the base of the column), as the unit of measure, is a blind standard, from whence errors and obscurity proceed.

The proportions of a Ceramic conoid are three times the mean diameter in height, the diameter of the base being of four, and that of the summit of three equal parts.

The stability resulting from inclined sides seems to authorize an elevation superior to that of cylindroids; yet it is not so. A compensation is established, in virtue of other considerations which result from the law or suitability. Conoids, as well as cylindroids, must not be more than three diameters in height.

Here an objection presents itself; it may be asked, what bond can exist between the Ceramic art and architecture, seeing that columns, the conoids of architecture, produce so fine an effect with proportions entirely different from those we assign to ceramic conoids? We need not resort to the adage, that the exception confirms the rule, for the community of principles evidently exists here in all its strength.

A column has *two* bases: the one takes its point of support from the pavement, the other from under the architrave. The column, then, has a base above, and a base below. Now, if each of these bases gives a shaft of three diameters in height, it results that a column of six diameters will be conformable to the principles we have established in Ceramic matters. Such, in fact,

are the proportions of the admirable columns of the Parthenon. Besides, the relations between the diameter of the summit and that of the base of the shaft of a column, will be the same in a ceramic conoid ; that is, three at the summit, four at the base, the difference of height being compensated for by the difference of support. Besides the columns of the Parthenon, those of the propylæ of the Citadel, those of the Temple of Nemesis at Rhamnus, of Ceres at Eleusis, of the propylæ of Eleusis, and of the fine Doric temples of Attica generally, have a height of six mean diameters, three parts at the summit, four at the base. The columns of the temple of Metapontus have a height of five times the mean diameter ; those of the great temple of Pæstum have a height of five times the mean diameter, but they include the capital ; they have three at the base, and two at the summit. Again, the columns of the antique temple of Corinth have a height of only four times the mean diameter, not including the capital, four at the base, three at the summit. The temples of ancient Egypt often present the example of columns, the shafts of which have the same proportions as those of the temple of Corinth, which, according to Stuart, is of the highest antiquity, and, consequently, built a long time before Pericles. This proves the influence of Egypt upon the early productions of the Greeks.

Still, it would not be correct to say that the column, raised in proportion as taste was refined, attained six diameters at the time of Pericles, by the effect of the law of progression solely. The temple of Theseus, built forty years before the Parthenon, at the time when Phidias

and Ictinus were yet children, presents the example of columns a little more elevated, relatively to their diameter, than were those of the Parthenon. Far from being a product of tradition, or of a scale of progression, the latter were meditated, discussed, and are the summary of the best experiments to attain perfect form.

On the other hand, if we consider that the highest of the ceramic conoids is three times less than the most slender of conoids in architecture, the Corinthian shaft, which has nine diameters, we shall see that the mean term between these two extremes is the Athenian column, *par excellence* the shaft of straight lines, the queen of conoids, the column of the Parthenon.

III. CLAVOIDS.

When a cylindroid has a diameter smaller at its base than at its summit, this primary form is named a *clavoid* (Frontispiece *B* 3). The key-stone of an arch gives the most correct idea of this form, the name for which is derived from the Latin *clava*, *clavis*, key *clavus*.

The term *inverted cone*, or *reversed cone*, used in geometry, has the serious objection of causing embarrassment when employed to designate forms which require the union of many words for a succinct description. Besides, this qualification of *inverted*, used in geometry, where it is exclusively employed for abstract figures, is not free from objection in the designation of ceramic forms, the summit of which is open, while the base is not, and the upsetting of which cannot be a matter of indifference. A ceramic *conoid* is a vase in which stability is recognized ; in which evaporation is

difficult; it must be greatly inclined in order to empty it. The *clavoid*, on the contrary, favours evaporation. Easy to empty, it is equally easy to upset. Is it not reasonable, then, to give two different names to things so different?

These considerations lead us to designate, by a distinct denomination, all the forms the reversing of which must necessarily modify the functions. We have much more reason to take account of inversion, as the most recent experiments of science, the most careful observations, demonstrate that in chemistry, mixtures of identical materials produce different compounds in obedience to molecular inversion.

The black pottery of the ancient Tarquins, found at Corneto, presents a thousand examples of clavoid cups, the handles of which are remarkable for their elevation. To name the innumerable models of this kind, would be to name all the galleries of antique vases, all the museums and private collections of the world. Among the modern, the clavoidal form appears reserved to the numerous family of flower-pots, and to the no less numerous family of drinking-glasses.

A *clavoid* must not exceed two mean diameters in height—at least, when it rests upon a base whose diameter ought to be large in proportion as the clavoid is more elongated and vase-like.

Suppose, then, the borders united to the base by straight lines, they will conform to the principles according to which the proportions of cylindroids, conoids, and shafts have been fixed (Frontispiece.)

For corresponding and inverse reasons developed on

the subject of conoids, the clavoidal form is but little employed in architecture. The laws of stability exclude it in the exterior construction of edifices.

The *ensemble* of the Corinthian capital may be considered as a chiselled clavoid; the mason delivered to the sculptor a regular clavoid; the sculptor brings out the capital, executes the details, but the principal salients border on the contour of the primary clavoid.

The torus of the capitals of the portico of Thoricus, that of the temples of Sunium and of Eleusis, is a clavoidal disc.

We may also rank among the number of clavoids the corbelling of some edifices of antiquity and of the Middle Ages. Those of Hadrian's Tomb or the Castle of St. Angelo at Rome, certain gates at Avignon, the Tower of Beaucaire, &c.

It has been stated, that the key of the vault is the representation, *par excellence*, of the clavoid. It often figures in relief on semi-circular arches. The Egyptians, Greeks, and Romans attached a just importance to the key of the vault, and to its ornamentation. This importance the Greeks called *Harmonia*. The Romans placed on it, in their triumphal arches, a statuette of victory, or of a conqueror,

IV. SPHEROIDS.

The *sphere* and *spheroid* are primary forms. Like the cube and the square, the *sphere* belongs more to geometry than to the beautiful forms of art.

In the same manner that the straight line is the

shortest road from one point to another, the *sphere* is the form which contains the greatest quantity of matter within the smallest possible extent of surface. This consideration has a certain importance in Ceramic art, from which utility is not excluded.

The *sphere* is, in every respect, the emblem of the most complete curve. The execution of a sphere, in sculpture, is a work of extreme difficulty. All that can be said of the form of domes, arcades, spherical vaults, all that we can describe of the intelligence, taste, and feeling necessary to the outline of the regular hemispherical curve, so much employed in architecture, is contained in a single precept :—Take a compass.

It is true that the section of the sphere, or rather, the roundness in a horizontal direction, is an elementary condition of all the ceramic forms made on the potter's wheel. Therefore, this condition comes not in question, as we have considered form only as profile and in elevation. For here the wheel performs the office of compass ; instead of turning around the object to describe it, we turn the object itself under mechanical pressure, from whence results a circular form, foreign to taste or feeling, and of abnormal intelligence.

The sphere may combine with other elements in a composite vase ; its developments can only take the name of proportions relatively to the various elements of the composition in which the sphere is employed.

The flattened spheroid (Frontispiece), having an aspect which distinguishes its breadth from its height, is in some of the conditions which bring it within the category of intelligent forms. It is the same with the

ellipsoid, which is distinguished from the sphere by different relations of height and breadth. Yet these spheroids of limited fitness, present few resources in fine ceramic compositions.

A circle inscribed in a square, modifies its sterility by the effect of contrast. From a similar feeling, architects surmount a ball upon an isolated column with an elongated cone. The acute form of the cone stimulates, and the straight lines which form it, correct the nullity of the geometric block. The straight lines and the right angles of a cross being combined with the sphere, produce an effect of contrast still more satisfactory, and compose, as to art, an emblem of universality of forms; an emblem that is placed in the hands of kings as a symbol of their power, and also of the universality of the Christian religion.

V. OGIVOID.

The *ogivoid* is to the sphere what the conoid is to the cylinder. It is a spheroid, smaller at its summit than at its base; it is the egg, with the small end uppermost.

The *ogivoid* is as important in Christian architecture, as the conoid (column) is in Grecian architecture.

An ogival (Gothic) window presents the profile of an ogivoid with cylindroidal base; in the same manner as the gates of Mycenæ, or the propylæ of Eleusis, represent the lines of a conoid.

An ogival window will have the finest proportions, if the part we name cylindroid has a height of three times its diameter. It will also be well proportioned, if it has

only a height of three times its semi-diameter. But below these proportions, the elegance of the window disappears. Ornaments become necessary, at least, for a series of similar forms to produce the effects of a whole. Examples of ogival windows of disproportioned height are not rare. This form corresponds to the shafts we see in the choirs of cathedrals. Cologne, Beauvais, &c., may be mentioned for the lightness of their ogival shafts.

The ogival form dates from the remotest antiquity; the treasury of Atreus at Mycenæ, a gateway at Arpino, an aqueduct at Tusculum, some vaulted arches in Mexico, the Cyrenaicus, a sepulchral chamber at Tarquinius, &c., still exist as proofs; but all these structures are only embryo precursors of the Gothic style which overspread all Christendom in the thirteenth century. These marvellous Gothic Christian monuments have had generations of detractors; now-a-days, justice is done to them.

The religious and sublime character of the Gothic style is now recognised, understood, and admired. It is to be wished that its use was exclusively reserved to the construction of Christian churches, as certain chalices, ciboria, chairs, and sacerdotal vestments are exclusively consecrated to religious use.

The proportions we have assigned to the cylindroids which support spherical domes, perfectly apply to the sides which support ogival vaults and ogivoid domes. An ogivoid dome is more solid than a spherical dome, as an ogival arch is more solid than a semicircular one.

The ogive may be more or less elongated; by means

of segments of circles, which unite in it, its outline is easy. The architect of the cathedral of Cologne has preferred the ogive inscribed on an equilateral triangle, and the superiority of these proportions is generally admitted.

The pine-apple, whether viewed in its natural condition, or considered as an ornament, is an ogivoid of great beauty, not only by the contour of its form, but also by the crossing of the spiral lines, from which results crystalline projections. Formerly, the Mausoleum of Hadrian was crowned by a bronze pine-apple, which may yet be seen in the gardens of the Vatican. Sir Christopher Wren has taken the pine-apple as one of the ornaments of the façade of St. Paul's. In the new hall of Egyptian sculptures at the Louvre, is a magnificent ogival vase of oriental alabaster, of remarkable size, and excellent shape. In the Ceramic art, the ogivoid is almost identical with the phocian form.

Form has its mysteries, which one art explains to another. If flame ascends in the air in the form of an ogivoid, it gives the best model of a kiln; in borrowing the contours of the fish, the ship traverses the ocean with greater rapidity; in adopting the contours of the egg, the furnace of the potter attains to perfection; and taking the almond as a model, the Minié bullet overcomes atmospheric influence more easily.

VI. OVOIDS.

The *ovoid* is to the sphere what the clavoid is to the cylinder. It resembles the clavoid by its relations of

diameter at the summit, relatively to the base. The one is the cone reversed, the other the egg reversed—the small end downwards; we might also call it *reversed ogivoid*, which we no more approve of than *reversed ovoid* for ogivoid.

The *ovoid* is one of the forms most employed in the Ceramic art of the Greeks. The ruins of Nola, Vulci, Tharros, Polentia, Milo, Samos, &c., have opened to us the most ancient products of Greece and Etruria. Tombs filled with ceramic offerings, the last testimony of the affection and recognition of the living for the dead, of a parent, child, friend, benefactor, or master, have been brought to light. Vases of the most varied forms have been exhumed. We may perceive that the ovoidal form, with large mouth, was, if not the most used, at least the most regarded, since it was reserved for the highest honours, and for the finest works of the ancient potters.

Among the Athenians, the Panathenian vase, filled with the oil of the sacred olive, and awarded to the victors in the solemn games, was ovoid, with straight neck, of well proportioned length, and discoid mouth. Its elongated ovoid rested upon a foot formed of two discs of unequal diameter and thickness. The verses or Pindar, as well as the Greek medals, have immortalized the Panathenian vase.

A general observation results from the examination of collections of antique vases, and from this observation we deduce a precept useful to Ceramic art. Among ovoids, some have large mouths, others straight necks. We may remark that generally, the larger the mouth,

the shorter the neck, and the narrower the mouth, the longer the neck. The formula deducible from which is: the height of the neck must be in inverse proportion to its diameter.

To satisfy the laws of stability, the ovoid, like the ogivoid, must have a base or a foot. On the principle of utility, it must have a mouth or a neck. The ovoid naturally combines all the parts inherent to the conditions of a composite Ceramic form. The figure of the different members which compose a vase must, for this reason, represent an ovoid.

The body of an ovoid will be much better proportioned, the more it approaches the more perfect form of the egg, according to the law of suitability. The pure taste of the artist alone can decide upon this condition. The perfect ovoid has a summit, a base, and sides, the direction of which must be evident; but the contour tends to so complete a fusion of the three parts of a single whole, that the beauty of the *ensemble* is only perceptible by refined natures. Among a hundred eggs of the same sort, there will be one more beautiful than all the others, and among a hundred persons, there will be one more capable of recognizing it than all the others.

The proportions of the neck, mouth, feet, socles, &c., of the handles also, are regulated by the general law of proportions. A vase, of which the body, foot and neck are of equal height, is misshapen, being in opposition to the laws of hierarchy and variety.

If the neck and body are equal, with a proportionate foot, the deformity is less; but still, such a vase is not

truly beautiful, whatever may be the beauty of its contour, and of its ornaments. If the neck is twice as high as the vase, a good abnormal effect may result. If the body is twice, or three times as high as the neck, the law of proportion is satisfied, taking into consideration the principle above stated.

The ovoid, as we regard it, is a form exclusively Ceramic; it has no significance in architectural constructions. The domes of St. Peter's at Rome, of St. Paul's at London, of the Panthéon at Paris, generally regarded as *ovoids*, are sublime *ogivoids*.

As an ornament in architecture, the ovoid, under the name of egg, is frequently and usefully employed in entablatures and eurythmic compositions; it corresponds agreeably with the modillions and dentels, which it embellishes by contrast. Considered alone, the egg ornament also produces a good effect by the interposition of slender lines and acute forms. The eggs of the Temple of Concord are intermixed with points. In the Temple of Jupiter Tonans, the arrow-point contrasts with the curve of the egg. Finally, we see that the ovoid has been chosen by the Creator for the form of a young and beautiful face. This consideration, which is a law of general beauty, explains the success of the ovoid vase and the beauty of the egg, for man esteems above everything the contours which reproduce his own image.

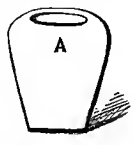
MIXED FORMS.

CANOPIAN AND PHOCIAN.

When the straight line and the curved line unite without interruption by a regular prolongation in a design of simple form, the product of these two generating essences is termed the *mixed* form. The Canopian and Phocian forms are the mixed forms *par excellence.*

If the mixed form corresponds to the clavoid and to the ovoid (Frontispiece, *D* 1), it takes the name of Canopian, from the Egyptian vase Canopus, numerous examples of which exist, (Fig. 1.)

FIG. 1.



CANOPIAN FORM.

The Egyptians excelled in the art of Terra Cotta—a material which served them in the production of figures of their divinities, more or less monstrous, often covered with a *cerulean* enamel, the only name by which we can designate the colour which combines the hues of blue and of green at their maximum splendour.

They also executed, in clay or in alabaster, vases called Canobi, from *Canobus*, which was the appellation of one of their divinities, who was represented as a pitcher with a human head for filtering of the Nile-water.

This word very probably derives its name from the city and valley of Canopus, where these vases were made. The covers of those which were destined for religious ceremonies, represented either a human head, or that of some fabulous animal. Canopian vases served for different purposes; those which were placed near

mummies, were filled with *scarabei*, either in terra cotta, enamel, or hard stones. Others were used as filters, for purifying the waters of the Nile, and their use for that purpose is common at the present day. These vases, united in rafts, descend the river, and after having served for the transport of men and merchandise, are separated, and sold in the cities of Lower Egypt.

We may consider the Canopian form as an ovoid with clavoid sides, the base of which must generally correspond in its diameter to the proportions indicated at page 39.

The Canopian form does not admit of a pivot, and in the case where it becomes slender, with a base without solution of continuity, it preserves its name. The varieties *napiform* and *turbiniform* are derived from the Canopian, from which they differ in respect of diameter and of inclination of the lines.

The torus of the capital of the Parthenon, of the temple of Theseus, of the propylæ of Pæstum, of Metaponte, is a Canopian discoid, and has no relation to the quarter circle of the Roman Doric. The one differs from the other, as a ball differs from the contours of a fine ovoid. The Doric capital of the Romans, which is not without merit when it is sculptured with ovoli, is the work of rule and compass ; the Greek capital is the work of intelligence. Architects who have given the name of *corrupt* torus to the Greek capital, and called the mouldings traced without compass *irregular*, are no less censurable for these unjust qualifications than for their abuse of Gothic architecture.

If we examine mummies, with their broad shoulders, the clavoid direction of the *ensemble*, we shall quickly recognise that the sight of these numerous and strange funeral monuments has produced a vivid impression upon the imagination of the Egyptians, and that it has given rise to the form of Canopian vases, which is the Egyptian ceramic form *par excellence*, the beauty of which has infinite charms.

The inhabitants of Marseilles, descendants of a colony of Phocians, have preserved and spread over the south of France a Ceramic form which might be regarded as the Canopian form reversed; but that is an inadmissible expression; this is the

PHOCIAN FORM.

This form, the stability of which belongs to the conoid, is very beautiful when the straight line which forms the sides is inflected unbroken, till it approaches the base. Ficoids, piriforms, guttiforms, bulbiforms, bursiforms, are only modifications of the Phocian form.

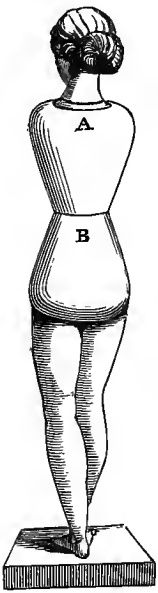
FIG. 2.

PHOCIAN FORM.

The Egyptians, who play so important a part in the primitive traditions of art, have themselves given, in their temple of Karnac, a sublime model of the Phocian form in all its purity. The capitals of the columns of this temple are of the Phocian form. If, from the Egyptians, we ascend to India, we find pillars, of the form of which the Phocians have preserved the type, in the subterraneous temples of Djagannartha, and of the Isle of Elephanta. The Greeks have borrowed many things from the

Egyptians, but the latter, in their turn, owe much to Indian traditions.

FIG. 3.



The design representing the Canopian form, A, and the Phocian form, B (these two mixed forms *par excellence*), superimposed, will render apparent, much better than a long discourse, the influence of the contours of the human form upon our predilections and judgments in producing Ceramic forms of abstract form and beauty.

These forms have been indicated (Frontispiece, *D* 1, *E* 1), as the types of the mixed form; the first, A, having given rise to the contours of the Doric capital of the most beautiful Greek temples, was consecrated by Phidias, either in the torus of the Parthenon, or in the portion of the frieze where we see four amphoræ, found in the ruins on the north of this temple. The second, B, has produced the capitals of the temples of Elephanta, of Karnac, and also a form of the most ancient supports of the Indian temples. This design, A B, far from being the result of subtle research, or of slight analogy, represents, in an analytical point of view, a profound and important observation. As to the truth of these analogies, they will be demonstrated to the reader who attentively examines the Egyptian antiquities collected in the British Museum and elsewhere.

A line, commencing from the shoulders, and prolonged to the feet, makes of every mummy case a Canopian vase. Moreover, we see the red and smiling head, with large eyes, of a young Egyptian; his full black hair falls upon Canopian shoulders, painted of an harmonious flatted white, representing, with a certain amplitude, the contours and forms of youth. The vase ends at the waist. Theophilus saw the contours of a Canopian vase in the line which describes the hips and ends at the knees of a Venus. Combining the simple developments of a perfect body with the fulness of a young girl, this line is eminently Ceramic.

I conclude this part of the subject with the following aphorism: that lines of slight curvature united to greatly inflected curves, represent straight lines by opposition. The union of the straight line with the curved line, which is one of the laws of beauty, far from being a condition of geometry, will rather be an inspiration of the simplest and noblest contours of the human form in youth. These principles must be applied with great discrimination, and not lead to the production of the vicious swelling of spindle-shaped columns.

COROLLÆ, CAMPANULÆ, AND STEMS.

The cylinder gives rise to conoids and clavoids by the inclination, either inwards or outwards, of lines which meet at its base.

When, instead of inclining inwards, the line of the cylinder is inflected outwards, commencing from the upper third, this inflection produces the corolla (Frontispiece, *F*). This form, one of the simplest in Ceramic

art, shines with all the beauty of a field flower, and alone, without ornament, without any addition whatever, forms an elegant vase.

When the curvature of the sides commences at the lower third (Frontispiece, *F* 2), the form, approaching more that of a clavoid, without ceasing to be beautiful, requires less height relatively to the diameter, and now the want of a base begins to appear evident. This second corolla is that which forms the sides of the composite vase called the Medician.

Lastly, when the cylindroid is inflected outwards, commencing with the upper third, and inwards, commencing with the lower third (Frontispiece *F* 3), this mixed form, which is that of a bell, is called *campanula.* It resembles the flower of the lily of the valley; but stability requires that the campanula should have a base, or a foot.

Considered by architects as an integral part of the Corinthian capital, the *campanula* goes back to the epoch at which Callimachus lived; and, as a ceramic work, having preceded the capital of Callimachus, its origin is lost in the darkness of ages.

We may regard the stems, or elongated corollæ, in Ceramic art, as members of a composite work, or as exceptions which fancy can oppose to the rigorous principles of art, but which good sense and good taste admit only when provided with members which ensure their stability. The intimate union of the straight line with the curved line in the same contour, is the principle which must preside in tracing corollæ, campanulæ, and stems.

COMPOSITE FORMS.

We will now analyse and describe the principal members of a vase.

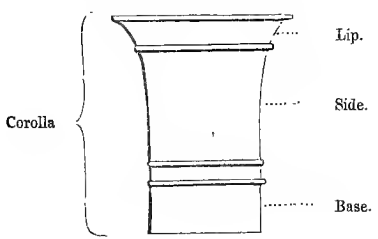
When various superimposed primary or mixed forms concur in a whole, the result is a *composite* work.

As the most pretentious works of Ceramic art are generally composite, it becomes important that we should understand our nomenclature devoted to the rudiments of form, and to giving a name to the different members which compose a vase.

To proceed logically, passing from the simple to the complex, we first designate by distinct terms the three principal parts of a vase of mixed form, of a ceramic corolla.

FIG. 4.

THE PRINCIPAL MEMBERS OF A VASE.

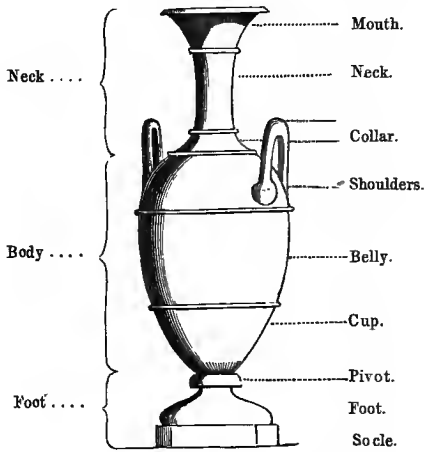


The annexed composite form (Fig. 5) is a whole, which results from the superposition of many primary

and mixed forms, according to the recognised laws of proportion, suitability, &c.

FIG. 5.

PRINCIPAL MEMBERS CONSTITUTING A COMPOSITE VASE.



The vase styled Medician, like the acanthus, has been used and abused; like it also, it has been multiplied to infinity, without ceasing to be a fine cyligraphic composition. The Medician vase seems to have been derived from the *campanula* of the woods, this flower might first have inspired the potter, then the sculptor, which would be possible for a part of the vase; but the fine arrangement of its reversed border, its canopian-formed base, the pivot so admirably placed, the foot, the agreeable contrast that results from the square socle, all these are beyond mere imitation.

The bell-flower, tile, plant and hut, may be germs which the artist has developed or appropriated, but this is not proved. This development must, however, be a result of genius, superior to all imitation. The *chef-d'œuvre* in the arts of imitation, are numerous and may be multiplied to infinity. In architecture it is not the same; grand creations are rarer than great epochs; such is the Greek temple, which combines what we call the orders of architecture; such is the gothic cathedral in which a work, interrupted by three centuries, is continued and completed. The cathedral which unites, according to the old proverb, the choir of Beauvais, the nave of Notre Dame, the portico of Rheims, and the tower of Strasbourg; the cathedral which unites the arabesque with all the resources of all the arts, is not a work of imitation, nor the result of geometry, but still it comprehends imitation and geometry. We may say that there exists only two architectural creations, the Greek temple and the Christian temple, to which all the arts of imitation are subjected.

A beautiful composite vase, which owes its beauty only to form, without the aid of the arts of imitation, and the varied parts of which are combined in a fine unity, is more rarely met with than a beautiful type. A new form is rarer than an original statue.

In architecture, as in the Ceramic art, the more simple the composition, the more difficult it is to create. How many statues have the Greeks made? A hundred thousand! How many capitals have they invented? Three!

MOULDINGS AND HANDLES.

MOULDINGS.

Mouldings are of great importance in architecture; they serve to mark great divisions, and may be subdivided at will, when the want of vigour, lightness, or diversity, is felt in a whole.

Mouldings, like *handles*, are subject to the fertile principle of the mixture of the curved with the straight line, and numerous examples testify to the existence of this law. "In fact, we observe in every architectural work, two kinds of mouldings, the round and the square—the first have softness, a kind of suppleness and grace," the second, in opposing light and shade without transition, produce by their sharp edges, a sort of hardness and dryness.

The superposition and mixture of the one with the other produces harmony and beauty. The sight of the best antique Greek structures confirms this principle, which may be formulated by saying—that every square moulding must be preceded and followed by a round one, so that the softness of the one may correct the harshness of the other. But as nothing is absolute in nature, so nothing can be in the arts. We say that the foot of a column must be round, because nothing in nature is square: the latter is an absolute maxim, to which crystals, the innumerable series of which form a brilliant exception. To the eyes of the profound observer, snow is composed of needle-like crystals, forming straight lines.

In art, as in nature, nothing is absolute, and the

mixture of square mouldings with round ones may, in certain cases, not be necessary.

When, in Roman architecture, the archivolts are ornamented with diamond-points, dentels, &c., as the sharp angles form series where the straight line rules exclusively, the architects of cathedrals have not feared to superimpose rounded mouldings, separated by deep channels, also rounded.

A very common error among the moderns, is the attempt to trace mouldings by means of the compass. This geometrical method produces regular and mechanical undulations where feeling, intelligence, reflection, or the calculation of light and shade ought to inspire the artist.

Theoretically, we recognise two sorts of rounded mouldings, viz.: the regular, produced by the compass, and the irregular, which are very rare.

We may term the one regular, and the other intelligent.

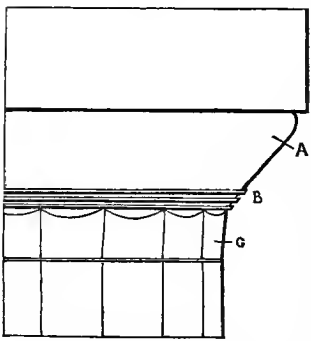
A prejudice, no less mischievous, leads architects to view mouldings only in profile. This scholastic fashion of comprehending art, produces the saddest effects. A fine profile of a moulding gives as a result, in most of its applications, only a vague array of insignificant lines.

Mouldings are beautiful only when they produce their effect upon the same faces of the edifice, from the most usual point of view—that is, from below, from the place where the eye of the spectator embraces the whole of the structure. As we have stated, a fine moulding must be composed of round and square parts, but its effect will

especially depend upon the law of proportions (p. 28), by means of which a mass governs the details which are subordinated to it in volume, in light, and in importance.

This law being unknown or misunderstood, a successful moulding is the result of accident; and in almost every edifice, we perceive the uncertainty that prevails in this particular.

FIG. 6.



PROFILE OF THE CAPITAL OF THE COLUMNS AT ELEUSIS.

If we analyse the profile of this torus, which is only a simple circular moulding, we find a straight line B A governing by its extent the curves B C and A, which are attached in unequal quantities, in place of a quarter circle as used by the Romans and the Italians Vignola, Palladio, and Scamozza, and in place of the mouldings of the carpenters of all times; we see the intelligent application of the finest and profoundest arcana of the science of forms; the mixture, in certain quantities of plane and curved surfaces in the same contour.

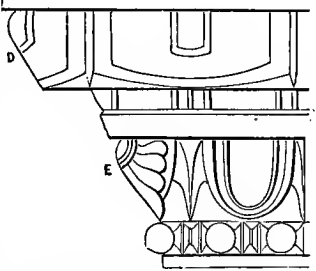
Let us examine a moulding among a thousand, that of a structure dating from the first period in Ancient Art, in order to demonstrate the little use made of the compass by the great masters of architecture.

The rounded parts E D of this moulding, are remarkable in this—their contours, as those of the capital, are

of ceramic origin, having the profile of the Canopian vase.

We sum up what precedes with respect to simple and isolated mouldings, in a principle applicable to the Ceramic art as well as to architecture:—the contours of a beautiful form must participate, in certain proportions, of the straight and the curved line.

FIG. 7.



MOULDING OF A CAPITAL TEMPLE OF NEMESIS OR RHAMNUS.

The contours of a vase, moulding, handle, console, &c., require all the taste, attention and talent of the artist, for they can be felt and appreciated only by a true artist.

HANDLES.

The utility of handles in Ceramic art need not be demonstrated.

In vases exclusively employed for transporting liquids, the handle must be arched, or fixed to each edge, like the handle of a basket.

If the vase is intended both for carrying and pouring, the handle must be attached sufficiently high, and prolonged low enough to allow the hand to carry it without fatigue, or be placed less high for emptying a full vase, and low enough to be completely emptied without contortion on the part of the person who pours.

The second kind of handle is the transversal, opposed to a beak, or spout. In ornamental vases, symmetry generally demands two transversal handles, the apparent purpose of which is to carry the vase by, and their chief merit to ornament it. Above all, the contours of the handle must ally themselves to the vase, so as to form an harmonions whole.

At other times, handles are for the purpose of bringing lightness and variety into a composition that looks heavy, or where the form is too rounded ; or they may have the effect of making the straight line contrast with dominant curves, and reciprocally.

Parallel handles are usually applied to cylindroidal pottery, or to that of the Canopian form, with short lip or mouth. Sometimes they are parallel and adherent. Some antique examples show that parallel handles, being elongated, and raised to a certain height, may attain to a rare degree of excellence. There are, then, parallel, detached, inflected, heightened, &c., handles.

Some handles are attached to the body of the vase by only one end ; they are more or less curved, and serve rather for ornament than use. Their isolation, simplicity, curvature, and terminal volute, constitute a special merit in Ceramic compositions.

Ears.—Lastly, *ears*, formed like various shells, mushrooms, &c., terminate this very general classification of an important accessory to Ceramic art. Ears may be horizontal, as shells, mushrooms, &c. ; they may also be vertical, as in Chinese jars ; they are then pierced, and form an indispensable ornament to simple or elongated contours.

The handle has no analogy in architecture, for the arcades of Gothic cathedrals have only a remote resemblance to handles.

All that has been said on the subject of the outlines of simple mouldings, is applicable to the contours of handles. As to the material execution of them, although we have neglected this side of the question, we know that Ceramic handles are made by hand, by the press, are moulded, formed upon the wheel by cutting a cylinder in transverse channels; they are also made hollow by casting, which enables us to obtain pieces or great lightness.

Handles may be bifidate, knotted, twisted, corded, rustic, fantastic, &c.

LAWS OF ORNAMENTATION.

COMPLICATION—CONFUSION—THE BEAUTIFUL—EURYTHMY—REPETITION—ALTERNATION—INTERSECTION.

I. COMPLICATION AND CONFUSION.

The object of ornamentation is embellishment. Embellishment has for its aim the satisfying of a feeling and natural inclination in man, one which distinguishes him from animals—the love of the beautiful.

COMPLICATION.—Complication is one of the important laws of beauty in art, and especially in ornamentation. The term is liable to be misunderstood, as it is obscured by numerous accepted meanings; but it will be easy to show that the beauty of certain architectural composi-

tions results from the complication of the relative parts, from the contact of the different members composing the whole. Strength and weakness, order and disorder, symmetry and non-symmetry, cross, bind, and unite to form unity from variety.

The beauty of an ornament, of a theorem in geometry, of a dramatic, oratorical, or musical composition, depend on the same law. The word *complication* suggests the idea of order, of clear solution, and, at the same time, of obscure combination; it indicates at once the knotting and the unknotting; lastly, and always, diversity and union. As to beauty, which according to Diderot, resides in "a word, an idea, a part of an object," to which we see nothing analogous in architecture, it corresponds to a primary or mixed form: it has its particular law, which is the law of fitness.

Complication is also a phase of art, which is derived from the sentiment Dedalus has expressed in the plan of his labyrinth; Solomon in his mysterious seal; the Greeks in their interlaced meanders; the Byzantines, the Moors, and the architects of our cathedrals, in their most beautiful works. The interlacings, the mosaics, the intersection of ribs and fillets, are the results of *complication.*

Complication charms us, in presenting to our notice the material formula of intelligence in labour; of intelligence combining without separating the different or opposed parts of a whole.

Complication, considered as a work, and as a principle, is a visible glorification of the human mind, raised to divinity by the infinite perception of regular

or irregular figures, and of the relations it discovers between them—arithmetical, geometrical, relations of equality and inequality, the infinite relations of angles, polygons, and of curves without number.

Confusion.—In the same manner that the agriculturist utilizes all the products of cultivation, so must the artist employ all the means and suggestions of nature. *Confusion* itself, the synonym of disorder, when it is *an effect of art*, is usefully employed in giving value to the order of fine proportions, and the resulting eurythmic harmonies. Pediments, friezes, metopes, ornamented with varied and unsymmetrical sculptures, formed of human aggregations, combats, processions, warriors, horses, &c., operate and ornament by the effect of confusion. Trophies of arms, without symmetry, suitably placed in the midst of simple, well-proportioned spaces, produce a good effect from the same cause.

If a vast ruin composed of regular arcades is crowned with the tufted and irregular roots of a parasite tree, or cut by a climbing ivy, a new charm results from this confused ornament. A photograph or engraving of such a scene, proves that this charm is not dependent on variety of colours.

We frequently see the regular ribs of a Gothic vault terminate in a boss composed of irregular and confused foliage. The churches of England and France afford numerous proofs. The churches of Spain present a hundred examples of the excess and abuse that can be made of this principle.

The necessity for *confusion* in works of art is such,

that at the time when landscape-gardeners attempted to subject nature to laws of symmetry and regularity, this necessity for confusion transferred itself to the ornaments. For while the gardener cut his box and yew-trees into grotesque geometrical forms, the sculptor filled his pedestals, niches, &c., with ornaments strictly imitated from vegetable nature.

II. EURYTHMY.

Among the Greeks and Latins, the word *eurythmy* signifies cadence, rhythm, harmony. Vitruvius has transmitted this expression to us (which he defined as a synonym of *proportion*), by which the Greeks designated one of the conditions of the beautiful in architecture. From Vitruvius we also learn that the Greeks considered the knowledge of the laws and rules of music as one of the qualifications necessary to an architect.

Eurythmy is applied only to the picturesque part of an edifice, as the reliefs of all kinds, susceptible of repetition and harmony. Thus, from a certain general and distant point of view, a colonnade represents a vast ornament; it is a rhythmic, cadenced series, which harmonizes with the other series.

If we examine the Grecian Doric order, which is simple beauty *par excellence*, we shall see that rhythm powerfully contributes to its beauty.

Above the gigantic, sonorous, and grave notes of the colonnade, we perceive the rhythmic divisions of the entablature; next, triglyphs succeed, like the measures

of a melody. We admire the beautiful arrangement of the consecutive metopes, the regularity of their periodical movements, the proportion of the intervals, the accuracy of the time, the perfect harmony of the concerting parts—I say, concerting, for the object of eurythmy is the uniting in a general concert the varied members and ornaments of an edifice.

If we approach nearer, we perceive the mouldings and their reliefs, the meanders which harmoniously roll and unroll themselves, in spaces at learnedly calculated distances; heads of growling lions, the salient forms of which are spirited notes in the midst of crepitant palm-leaves; the flutings of the columns appear like the vibrations of the male voice; the capitals, by their rounded form, convey to the mind an impression of the lugubrious drum—they contrast, in their resonance, with the large triple band of the architrave, which extends like the line of a long recitative, and combines the unequal tones of a monumental concert in a unity.

Such effects are not due to a capricious imagination; they proceed from science—from a law—from *eurythmy*. They explain why music formed a part of the education of an Athenian architect, the possessor of the secrets discovered by Pythagoras.

III. REPETITION.

Repetition is justly considered as one of the principles of ornamentation. A common-place object—a small cube, for instance—being repeated, and formed into a

continuous series, produces an agreeable effect in a moulding; such are dentels. A channel, a leaf, &c., being repeated, become architecturic ornaments, which derive all their value from *repetition.* The Corinthian order demonstrates this truth in its minutest details.

IV. ALTERNATION.

Repetition may be *simple* as just described, it may also be *alternating* when, for example, the spaces between the leaves of ivy on a moulding, are filled with leaves of another kind, elongated, for instance, the pointed form of which produces *alternation:* or when square discs or rings are placed between elongated pearls, or when the egg or ovolo is repeated alternately with a leaf or dart.

Alternation is a formula of repetition, which has its rule; this rule is, that the alternating parts must vary in volume and in extent, as well as in form and in design. Symmetry and variety, repetition and *inequality* are the rules, the principles of *alternation.*

V. INTERSECTION.

The Greeks, in the ornamentation of a moulding, had recourse only to repetition or alternation: imitated by the Romans, who, in their turn, are imitated by the moderns, we must not be surprised that words are wanting to express unknown facts. It then becomes necessary to employ the word *intersection*, to designate the extension of an eurythmic cadence, and the *beats*

it produces in marking the measure of one plane upon another.

FIG 8..

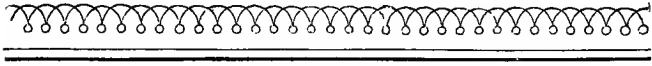
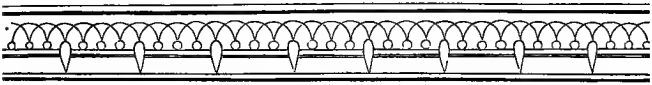


FIG. 9.



These two examples, one of simple *repetition*, the other of *intersection*, will make the merits of repetition and intersection better understood than any definition. Not that such figures are presented as ornaments; they are two symbols, two formulæ, reduced to favour comparison by isolation.

Callimachus, the most ingenious of the Greeks, who invented the golden lamp of the temple of Minerva, the flame of which burned during a whole year without trimming or renewing, was also the inventor of the Corinthian capital. Callimachus placed in front of his capital the only example of intersection the Greeks attempted. The flower which cuts the horizontal divisions of the abacus, and extends to the edge of the *corolla*, the flower of the Corinthian capital is an intersecting ornament. It bears in its centre an enigmatical embryo, which reveals the thought of the artist, but this embryo was not developed, and Oriental intersection was not developed on Athenian soil; it was absorbed by the developments of simple eurythmy exclusively. The flower of Callimachus remains as an incomprehensible symbol at

the summit of the Corinthian column, between the abacus and the corolla, binding the whole, according to the expression of heraldic science, also of Oriental origin.

The bays and protruding bodies which cut the monotony of a long gallery, produce an effect which is allied to intersection. The *motif* of beauty in the *ensemble* which results from these *breaks*, is contained both in the law of proportions of primitive forms, and in that of intersection.

Persian carpets, Oriental damask-work often present beautiful examples of intersection.

In future, *intersection* will preside over the development and perfectioning of which ornamentation is susceptible. Intersection indicates great divisions, it scans the subdivisions, and tends to render visible the relations which result from well-cultivated proportions. Intersecting ornaments which indicate the middle, produce a kind of beauty which explains the law of fitness.

The consoles supporting a long balcony, as seen in certain streets, form in perspective an ornament of the nature of modillions in an entablature, an ornament by simple repetition.

In this example, the effect of continuous repetition is feeble ; but it will be immense and admirable, if above each arcade, a console more elongated, curved, and cutting in a palpable manner the monotonous line, indicates by intersection, the middle of the arcades, by uniting with the key-stone of the centre. Two conditions of the beautiful will be fulfilled—expression and eurythmy ; such is the object of the triglyphs in the Doric archi-

tecture, where they indicate alternately the column and the intercolumniation; such is the effect of the mutules, which indicate the triglyph and the middle of the metope.

Complication, confusion, eurythmy, repetition, alternation and intersection: these are the Æsthetic laws which govern at the same time public taste and the ornamental work submitted to its appreciation.

THE END.

LONDON:
Printed by A. Schulze, 13, Poland Street.

WINSOR & NEWTON'S

LIST OF

COLOURS AND MATERIALS

FOR

WATER COLOUR PAINTING,

OIL COLOUR PAINTING,

PENCIL DRAWING, &c.

INCLUDING

WATER AND OIL COLOURS, BRUSHES, PENCILS
DRAWING PAPERS AND STATIONERY, PREPARED CANVAS, STEEL WARE,
JAPANNED WARE, CABINET WARE, ARTISTS' CHINA WARE,
AND PUBLICATIONS ON THE FINE ARTS.

TRADE  MARK.

WINSOR & NEWTON,

Manufacturing Artists' Colourmen by Special Appointment to
HER MAJESTY,
And Their Royal Highnesses the Prince and Princess of Wales.

38, RATHBONE PLACE, LONDON.

WINSOR & NEWTON'S WATER COLOURS.

Previous to the establishment of the House of Winsor and Newton (in 1832), the evil repute of want of permanence attached to the *Water Colours* in ordinary use; and the most beautiful productions of Water Colour Art were inevitably fugitive through the instability of the materials employed. Complaints on this head were borne out by facts almost incredible to artists of the present day, whose predecessors used Spanish Liquorice, Dutch and Rose Pinks, Red Lead, Orpiment, Verditer, Green Bice, and even washes of tobacco-juice.

This deplorable state of so beautiful and purely English an art, urged Winsor and Newton to earnest inquiry and research, with a view of raising the character of the material employed.

The high standard of excellence sought by Winsor and Newton entirely set aside all commou recipes and pernicious compounds, and rendered indispensable the aid of Chemical Science. Therefore perfectly appointed Chemical Works were established by them in 1844, with steam apparatus and all the appliances auxiliary to modern Chemical Art.

The advantageous results of the establishment of these Works were apparent in the production of colours totally different from those of all the other manufacturing colour houses. The old colours were improved and new ones introduced. Madders, Lakes, Carmines, Chinese White, Genuine Ultramarines, Chromes, Lemon Yellows, Cadmium Yellows, Aureolin, Viridian, &c., have attested by their superior qualities to the skill bestowed upon their production. The great advantages secured have been:—First, Increased power and brilliancy; and Secondly, The improvement in permanence of colours previously bearing hut a faulty reputation in this respect, *and this may be said of nearly all the chemically made colours.*

Of WINSOR & NEWTON'S WATER COLOURS, therefore, it may be stated, that sound chemical knowledge and complete laboratory plant and apparatus,—powerful and specially adapted machinery,—and the matured experience of many years, ensure *purity of Pigment, exquisite fineness, and a most perfect form of preparation for the Artist's palette.*

WINSOR & NEWTON'S

FINELY PREPARED WATER COLOURS

IN DRY

CAKES AND HALF CAKES.

CAKE.

HALF CAKE.

CAKES, 1*s.* each.—HALF CAKES, 6*d.* each.

Antwerp Blue
Bistre
Blue Black
British Ink
Bronze
Brown Ochre
Brown Pink
Burnt Sienna
Burnt Umber
Chinese White
Chrome Yellow
Cologne Earth
Deep Chrome
Dragon's Blood
Emerald Green
Flake White
Gamboge
Hooker's Green, No. 1.
Hooker's Green, No. 2.
Indian Red
Indigo
Italian Pink
Ivory Black
King's Yellow
Lamp Black
Light Red
Naples Yellow
Neutral Tint
New Blue
Olive Green
Orange Chrome
Payne's Grey
Prussian Blue
Prussian Green
Raw Sienna
Raw Umber
Roman Ochre
Sap Green
Terre Verte
Vandyke Brown
Venetian Red
Vermilion
Yellow Lake
Yellow Ochre

CAKES, 1*s.* 6*d.* each.—HALF CAKES, 9*d.* each.

Black Lead
Brown Madder
Cerulean Blue
Constant White
Crimson Lake
Indian Yellow
Mars Yellow
Neutral Orange
Purple Lake
Roman Sepia
Rubens' Madder
Scarlet Lake
Scarlet Vermilion
Sepia
Warm Sepia

CAKES, 2*s.* each.—HALF CAKES, 1*s.* each.

Cobalt Blue
Orange Vermilion
Violet Carmine

CAKES, 3*s.* each.—HALF CAKES, 1*s.* 6*d.* each.

Aureolin
Burnt Carmine
Cadmium Yellow, Pale
Cadmium Yellow
Cadmium Orange
Carmine
French Blue
(or French Ultramarine)
Gallstone
Green Oxide Chromium
Indian Purple
Intense Blue
Lemon Yellow
Pink Madder
Pure Scarlet
Rose Madder
(or Madder Lake)
Viridian

CAKES, 5*s.* each.—HALF CAKES, 2*s.* 6*d.* each.

Field's Orange Vermilion
Madder Carmine
Mars Orange
Purple Madder
Smalt
Ultramarine Ash

CAKES, 21*s.* each.—HALF CAKES, 10*s.* 6*d.* each.
QUARTER CAKES, 5*s.* 6*d.* each.

Genuine Ultramarine.

WINSOR & NEWTON'S

FRENCH POLISHED MAHOGANY

WHOLE CAKE

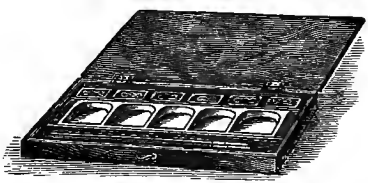
BOXES OF WATER COLOURS.

"SLIDE"

BOXES

	£	s.	d.
6 Cake "Slide" Box, with brushes	0	6	0
12 Ditto ditto ditto	0	12	0
18 Ditto ditto ditto	0	18	0
24 Ditto ditto ditto	1	4	0

"LID"



BOX.

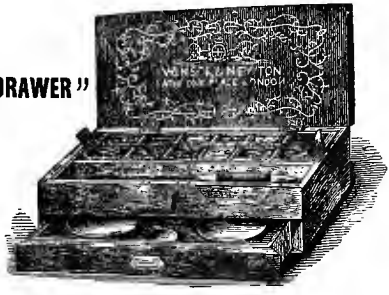
	£	s.	d.
6 Cake "Lid" Box, with brushes, &c.	0	10	6

"LOCK"

BOXES.

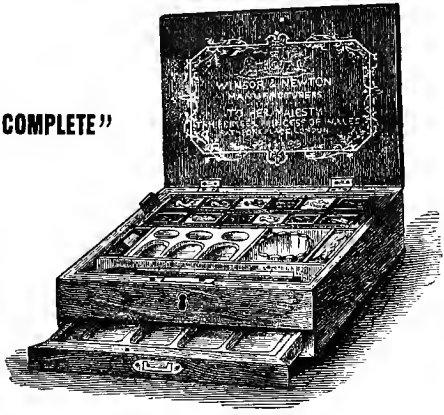
	£	s.	d.
12 Cake "Lock" Box, with fittings	0	15	0
18 Ditto ditto ditto	1	1	0

"LOCK AND DRAWER" BOXES



	£	s.	d.
12 Cake "Lock and Drawer" Box, with fittings . .	0	18	0
18 Ditto ditto ditto	1	5	0

"COMPLETE" BOXES.



	£	s.	d.
12 Cake "Complete" Box, with fittings	1	1	0
18 Ditto ditto ditto	1	11	6
24 Ditto ditto ditto	2	2	0

"CADDY LID" BOXES.

	£	s.	d.
12 Cake "Caddy Lid" Box, with full fittings . . .	1	11	6
18 Ditto ditto ditto	2	2	0
24 Ditto ditto ditto	3	3	0

"CABINET LID" BOXES.

	£	s.	d.
12 Cake "Cabinet Lid" Box, with varied fittings . .	2	12	6
18 Ditto ditto ditto	3	3	0
24 Ditto ditto ditto	4	14	6

ARCHITECT'S AND SURVEYOR'S BOX.

	£	s.	d.
Containing 16 Cake Colours, Indian Ink, Brushes, and complete fittings	5	5	0

"HANDSOME" BOXES.

			£	s.	d.
12 Cake "Handsome" Box,	with first class fittings	.	3	13	6
18 Ditto	ditto	ditto . . .	4	14	6
24 Ditto	ditto	ditto . . .	6	6	0
36 Ditto	ditto	ditto . . .	9	9	0
12 Cake "Extra Handsome" Box,	with choice fittings	.	4	14	6
18 Ditto	ditto	ditto . . .	5	15	6
24 Ditto	ditto	ditto . . .	8	8	0
36 Ditto	ditto	ditto . . .	12	12	0
50 Ditto	ditto	ditto . . .	21	0	0

WINSOR & NEWTON'S

FRENCH POLISHED MAHOGANY

HALF CAKE

BOXES OF WATER COLOURS.

"LID" BOX.

		s.	d.
6	HALF CAKE "SLIDE" BOX, with brushes. . . .	4	0
12	Ditto ditto ditto	6	6
18	Ditto ditto ditto	9	6
24	Ditto ditto ditto	12	6

		s.	d.
6	HALF CAKE "LID" BOX, with brushes	5	0

		s.	d.
12	HALF CAKE "LOCK" BOX, with fittings	9	0
18	Ditto ditto ditto	12	0

		£.	d.
12	HALF CAKE, "LOCK AND DRAWER" BOX, with fittings .	12	0
18	Ditto ditto ditto ditto . .	15	0

		s.	d.
12	HALF CAKE "COMPLETE" BOX, with fittings . . .	14	0
18	Ditto ditto ditto	18	0

		s.	d.
12	HALF CAKE "CADDY LID" BOX, with full fittings . .	20	0
18	Ditto ditto ditto . . .	25	0

N.B.—Whole Cake Water Colour Boxes, manufactured of Spanish Mahogany, Rosewood, Ebony, Walnut, and other choice Woods, in the first style of workmanship, and variously fitted with every requisite for Miniature, Figure, or Landscape Painting, Engineering &c., from £30 to £100. Also Brass Bound Boxes for India, &c.

WINSOR & NEWTON'S

MOIST WATER COLOURS

IN PORCELAIN PANS.

WINSOR AND NEWTON'S Moist Water Colours *are prepared after peculiar processes, and by a system of treatment known only to the Makers.* Their characteristic qualities of easy solubility and prompt readiness for use are retained, unimpaired, for an unlimited period of time; so that a box of them, which may have been laid aside for two or three years, when required for use will be found *no less serviceable than when first purchased.* Climate also fails to affect these colours, which are found to be, and to remain, no less "Moist" in Tropical countries than in England; accordingly, they are confidently recommended to persons who are going to INDIA, and to all residents in the East. While having this valuable quality of solubility in their solid form, they possess another and all important one, *in drying perfectly firm on the paper* when in use. Their tints, too, are pure and luminous, and their washes clear and even.

In Sketching from Nature, and, when representing transient and evanescent effects, the superiority of the Moist Colours is at once felt and appreciated. Ever ready for instant application, they enable the desired tint to be produced *at once*—a result unattainable by the old tedious method of rubbing dry cakes, which not unfrequently permits the effect, and with it the *thought* of the artist to vanish, before the material can be obtained. It was this quality which, on their first introduction, secured for Winsor and Newton's Moist Colours the eminent popularity that they still enjoy with both professional and amateur artists.

The Moist Colours are placed in pans (in their size resembling the ordinary dry-cakes) of thin porcelain, and they are afterwards enclosed in tin-foil for greater security. When required for use, the foil is rsmoved. A surface of colour is then presented to the artist, which is obtainable in any quantity, simply by the application of a wet brush.

WINSOR & NEWTON'S

MOIST WATER COLOURS,

IN

WHOLE AND HALF CAKE PORCELAIN PANS.

WHOLE CAKE PAN.

HALF CAKE PAN.

WHOLE PANS, 1*s.* each.—HALF PANS, 6*d.* each.

Antwerp Blue
Bistre
Blue Black
Brown Ochre
Brown Pink
Burnt Sienna
Burnt Umber
Chinese White
Chrome Yellow
Cologne Earth
Deep Chrome
Emerald Green
Gamboge
Hooker's Green, No. 1.
Hooker's Green, No. 2.
Indian Red
Indigo
Italian Pink
Ivory Black
Lamp Black
Light Red
Naples Yellow
Neutral Tint
New Blue
Olive Green
Orange Chrome
Payne's Grey
Prussian Blue
Prussian Green
Raw Sienna
Raw Umber
Roman Ochre
Sap Green
Terre Verte
Vandyke Brown
Venetian Red
Vermilion
Yellow Lake
Yellow Ochre

WHOLE PANS, 1*s.* 6*d.* each. HALF PANS, 9*d.* each.

Brown Madder
Crimson Lake
Indian Yellow
Leitch's Blue
(or Cyanine Blue)
Mars Yellow
Neutral Orange
Purple Lake
Roman Sepia
Rubens' Madder
Scarlet Lake
Scarlet Vermilion
Sepia
Warm Sepia

WHOLE PANS, 2*s.* each.—HALF PANS, 1*s.* each.

Cobalt Blue
Orange Vermilion
Violet Carmine

WHOLE PANS, 3*s.* each.—HALF PANS, 1*s.* 6*d.* each.

Aureolin
Burnt Carmine
Cadmium Yellow, Pale
Cadmium Yellow
Cadmium Orange
Carmine
French Blue
(or French Ultramarine)
Gallstone
Green Oxide Chromium
Indian Purple
Intense Blue
Lemon Yellow
Pink Madder
Pure Scarlet
Rose Madder
(or Madder Lake)
Viridian

WHOLE PANS, 5*s.* each.—HALF PANS, 2*s.* 6*d.* each.

Mars Orange
Purple Madder
Smalt
Ultramarine Ash

WINSOR & NEWTON'S

PATENT-FLEXIBLE-DIVISION

JAPANNED TIN BOXES OF

MOIST WATER COLOURS.

(See illustration on opposite page.)

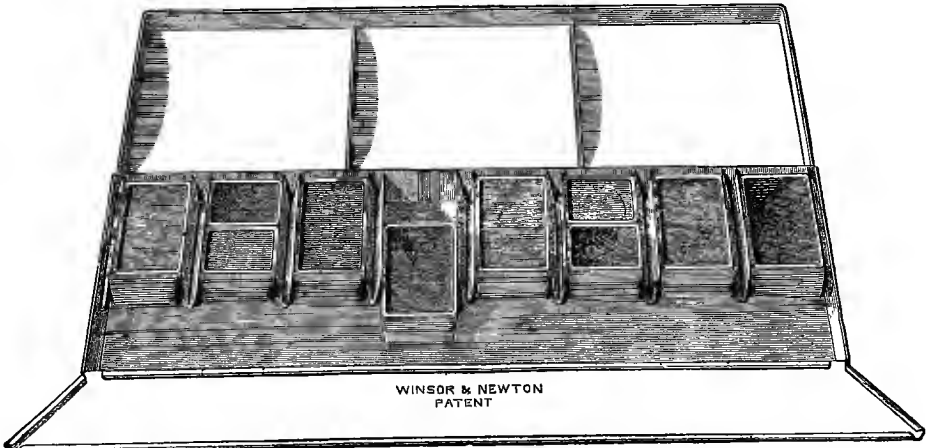
It has long been felt as a considerable inconvenience, that in ordinary Boxes of Moist Colours the pans cannot be removed (without breakage or damage), in consequence of their having to be fastened to the bottom of the box to prevent their falling out. Virtually it is impossible for the purchaser to alter the arrangement of the colours, and generally nothing but the breakage of the empty pan, (and sometimes the division of the box as well,) will enable him to replace a spent colour.

WINSOR & NEWTON'S *Patent-Flexible-Division Box* obviates these annoyances, and permits of colours being inserted and taken out, or re-arranged at pleasure.

N.B.—Winsor & Newton's Japanned Tin Boxes for Moist Water Colours are light and strong, with flaps of a dead white colour, serving as palettes. The Selections of Colours placed in them have been made with much care, and after due study of the various lists of the first Water Colour Artists.

N.B.—In all cases of Boxes of Moist Water Colours the prices quoted are for the Box and the Moist Colours contained therein only; no general fittings being included.

WINSOR & NEWTON'S PATENT-FLEXIBLE-DIVISION MOIST COLOUR BOX.



PATENT-FLEXIBLE-DIVISION BOX OF MOIST WATER COLOURS.

(*For Prices see pages* 16 *and* 17.)

WINSOR & NEWTON'S

PATENT-FLEXIBLE-DIVISION

JAPANNED TIN BOXES OF

MOIST WATER COLOURS.

(*See illustration on previous page.*)

(Empty, 3*s.* 6*d.*) **2 Cake Box.** Fitted, 5*s.* 6*d.*
Chinese White, and Sepia.

(Empty, 4*s.*) **3 Cake Box.** Fitted, 6*s.* 6*d.*
Chinese White, New Blue, and Sepia.

(Empty, 4*s.* 6*d.*) **4 Cake Box.** Fitted, 8*s.* 6*d.*
Raw Sienna, Light Red, Cobalt, and Vandyke Brown.

(Empty, 5*s.*) **6 Cake Box.** Fitted, 10*s.* 6*d.*
Gamboge, Yellow Ochre, Crimson Lake, Light Red, Prussian Blue, and Vandyke Brown.

(Empty, 6*s.*) **8 Cake Box.** Fitted, 14*s.*
Gamboge, Yellow Ochre, Burnt Sienna, Crimson Lake, Light Red, Cobalt, Indigo, and Vandyke Brown.

(Empty, 6*s.* 9*d.*) **10 Cake Box.** Fitted, 18*s.*
Gamboge, Aureolin (½), CadmiumYellow (½), Yellow Ochre, Burnt Sienna, Crimson Lake, Light Red, Cobalt, Indigo, Brown Pink, and Vandyke Brown.

(Empty, 7*s.* 6*d.*) **12 Cake Box.** Fitted, £1 1*s.*
Gamboge, Aureolin (½), Cadmium Yellow (½), Yellow Ochre, Burnt Sienna, Crimson Lake, Light Red, Vermilion (½), Indian Red (½), Cobalt, Indigo, Brown Pink, Vandyke Brown, and Neutral Tint.

(Empty, 8*s.* 3*d.*) **14 Cake Box.** Fitted, £1 5*s.*
Gamboge, Aureolin (½), Cadmium Yellow (½), Yellow Ochre, Burnt Sienna, Crimson Lake, Light Red, Vermilion (½), Indian Red (½), Brown Madder, Cobalt, Indigo, Brown Pink, Vandyke Brown, Neutral Tint, and Sepia.

(Empty, 9*s.*) **16 Cake Box.** Fitted, £1 11*s.* 6*d.*

Gamboge, Aureolin (½), Pale Cadmium Yellow (½), Yellow Ochre, Cadmium Yellow (½), Cadmium Orange (½), Burnt Sienna, Rose Madder, Crimson Lake, Light Red, Vermilion (½), Indian Red (½), Brown Madder, Cobalt, Indigo, Emerald Green (½), Viridian (½), Brown Pink, Vandyke Brown, and Neutral Tint.

(Empty, 10*s.* 6*d.*) **18 Cake Box.** Fitted, £1 15*s.*

Gamboge, Aureolin (½) Pale Cadmium Yellow (½), Yellow Ochre, Cadmium Yellow (½), Cadmium Orange (½), Burnt Sienna, Rose Madder, Crimson Lake, Light Red, Vermilion (½), Indian Red (½), Brown Madder, Purple Lake, Cobalt, Indigo, Emerald Green (½), Viridian (½), Brown Pink, Vandyke Brown, Neutral Tint, and Sepia.

(Empty, 12*s.*) **20 Cake Box.** Fitted, £2 2*s.*

Gamboge, Aureolin, Raw Sienna (½), Pale Cadmium Yellow (½), Yellow Ochre, Cadmium Yellow (½), Cadmium Orange (½), Burnt Sienna, Rose Madder, Crimson Lake, Light Red, Vermilion (½), Indian Red (½), Brown Madder, Purple Lake, Cobalt, French Blue, Indigo, Emerald Green (½), Viridian (½), Brown Pink, Vandyke Brown, Neutral Tint, and Sepia.

(Empty, 15*s.*) **24 Cake Box.** Fitted, £2 12*s.* 6*d.*

Gamboge, Aureolin, Lemon Yellow (½), Raw Sienna (½), Yellow Ochre, Pale Cadmium Yellow (½), Cadmium Orange (½), Cadmium Yellow, Burnt Sienna, Rose Madder, Crimson Lake, Light Red, Vermilion (½), Indian Red (½), Brown Madder, Purple Lake, Cobalt, French Blue, Prussian Blue, Indigo, Viridian (½), Emerald Green (½), Terre Verte (½), Oxide of Chromium (½), Olive Green, Brown Pink, Vandyke Brown, Neutral Tint, and Sepia.

(Empty, 18*s.*) **30 Cake Box.** Fitted, £4 4*s.*

Gamboge, Pale Cadmium Yellow (½), Lemon Yellow (½), Aureolin, Raw Sienna, Yellow Ochre, Cadmium Yellow, Cadmium Orange, Mars Orange, Burnt Sienna, Rose Madder, Carmine, Crimson Lake, Light Red, Orange Vermilion, Vermilion (½), Indian Red (½), Brown Madder, Purple Madder, Burnt Carmine, Violet Carmine, Smalt (½), Intense Blue (½), Emerald Green (½), Viridian (½), Ultramarine Ash, Cobalt, French Blue, Prussian Blue, Oxide of Chromium (½), Terre Verte (½), Brown Pink, Vandyke Brown, Neutral Tint, and Sepia.

WINSOR AND NEWTON'S

JAPANNED TIN BOXES OF

MOIST WATER COLOURS.

JAPANNED TIN BOX OF MOIST WATER COLOURS

The Lists of Colours are the same as placed in the Patent-Flexible-Division Boxes of Moist Water Colours, (Pages 16, and 17).

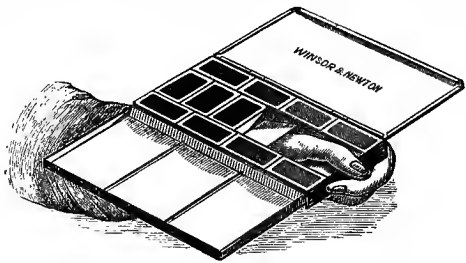
WHOLE CAKE.

Empty. s.	Empty. d.		Fitted with Colours. £	s.	d.	Empty. s.	Empty. d.		Fitted with Colours. £	s.	d.
3	0	2 Cake . . .	0	5	6	6	9	14 Cake . . .	1	5	0
3	3	3 ,, . . .	0	6	6	7	6	16 ,, . . .	1	11	6
3	6	4 ,, . . .	0	8	6	8	3	18 ,, . . .	1	15	0
4	0	6 ,, . . .	0	10	6	9	0	20 ,, . . .	2	2	0
4	6	8 ,, . . .	0	14	0	9	9	22 ,, . . .	2	5	0
5	3	10 ,, . . .	0	18	0	10	6	24 ,, . . .	2	12	6
6	0	12 ,, . . .	1	1	0	13	6	30 ,, . . .	4	4	0

HALF CAKE.

Empty. s.	Empty. d.		Fitted with Colours. £	s.	d.	Empty. s.	Empty. d.		Fitted with Colours. £	s.	d.
3	3	3 Half Cake .	0	5	0	6	0	14 Half Cake .	0	15	0
4	0	6 ,, .	0	7	6	6	6	16 ,, .	0	18	0
4	6	8 ,, .	0	9	0	7	0	18 ,, .	1	1	0
5	0	10 ,, .	0	10	6	7	6	20 ,, .	1	5	0
5	6	12 ,, .	0	12	6	8	6	24 ,, .	1	11	6

WINSOR & NEWTON'S THUMB-HOLE BOXES.

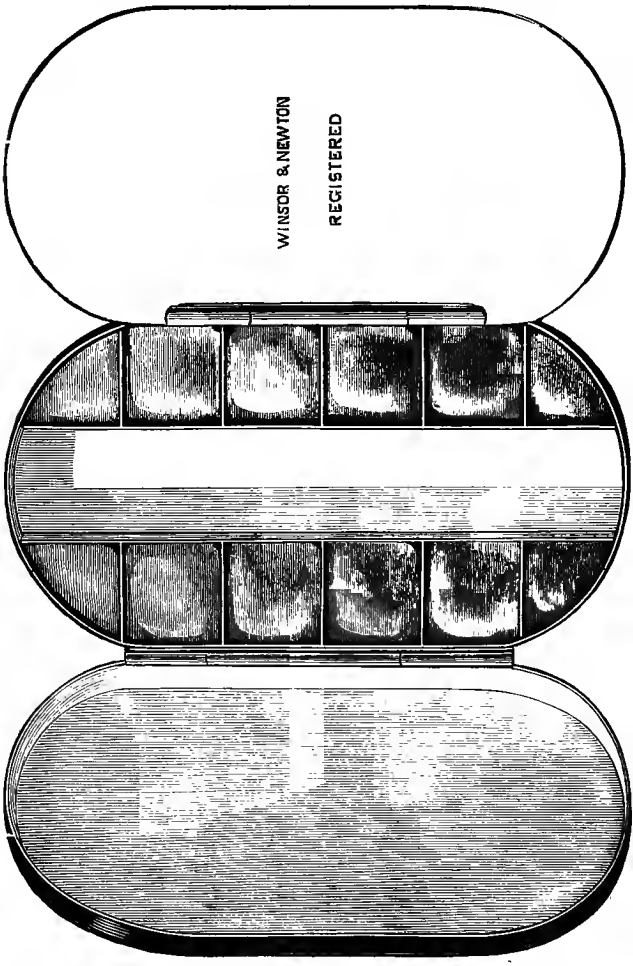


Empty. s.	d.	THUMB-HOLE BOX.	Fitted with Colours. £	s.	d.
9	0	11 Cake Moist Water Colour Thumb-hole Box .	1	5	0
10	6	17 „ ditto	1	15	0
12	0	21 „ ditto	2	5	0

WINSOR & NEWTON'S PALETTE-BOXES.

Empty. s.	d.	PALETTE BOX.	Fitted with Colours. £	s.	d.
5	0	6 Half Cake Moist Water Colour Palette Box with Patent Flexible Divisions . . .	0	8	6
5	6	8 Ditto ditto ditto . . .	0	10	6
6	0	10 Ditto ditto ditto . . .	0	12	6
6	6	12 Ditto ditto ditto . . .	0	15	0

THE OVAL-POCKET-BOX.



THE OVAL-POCKET-BOX.
(*Size of the Box.*)

WINSOR & NEWTON'S

REGISTERED

JAPANNED TIN BOXES OF

MOIST WATER COLOURS.

THE OVAL-POCKET-BOX.

REGISTERED NO. 257,752.

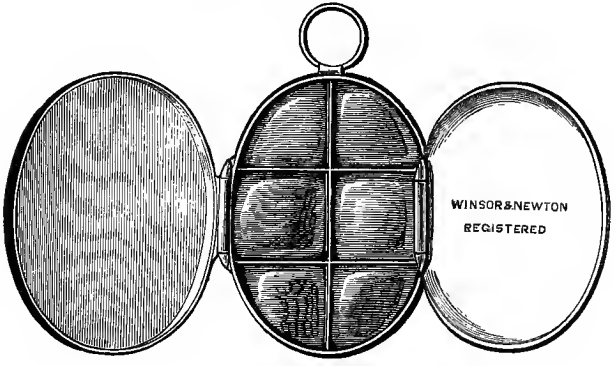
(*As illustrated on opposite page.*)

Very convenient for the pocket, both in shape and size. Contains twelve Colours, and has a division for brushes.

Fitted with twelve Colours, Price 15*s.*

THE LOCKET BOX.

REGISTERED NO. 257,753.



THE LOCKET BOX.
(*Size of the box.*)

A neat, light, bijou Box, that can be carried on a watch-guard or chain, and containing six Colours.

Fitted with six Colours, Price 6*s.* 6*d.*

WINSOR & NEWTON'S
REGISTERED JAPANNED TIN BOXES OF MOIST WATER COLOURS.
CONTINUED.

THE PORTE-COULEUR.

REGISTERED NO. 215,673.

THE PORTE-COULEUR.
(Size of the box.)

Small and compact for the waistcoat-pocket. Contains twelve Colours.

Fitted with twelve Colours, Price 10*s.* 6*d.*

WINSOR & NEWTON'S MOIST WATER COLOURS

IN COLLAPSIBLE TUBES.

Moist Tube Colours, though somewhat wasteful and troublesome in use, are of assistance as furnishing quickly a quantity of colour, and affording facilities for power of touch and vigour of effect. They should, however, be used within reasonable time, as they do not keep so long or so well as the ordinary solid or "Pan" form of Moist Colour.

1*s.* each.

Antwerp Blue	Deep Chrome	Naples Yellow	Raw Umber
Bistre	Emerald Green	Neutral Tint	Roman Ochre
Blue Black	Gamboge	New Blue	Terre Verte
Brown Ochre	Indian Red	Olive Green	Vandyke Brown
Brown Pink	Indigo	Orange Chrome	Venetian Red
Burnt Sienna	Italian Pink	Payne's Grey	Vermilion
Burnt Umber	Ivory Black	Prussian Blue	Yellow Lake
Chinese White	Lamp Black	Prussian Green	Yellow Ochre
Chrome Yellow	Light Red	Raw Sienna	

1*s.* 6*d.* each.

Brown Madder	Leitch's Blue	Purple Lake	Scarlet Vermilion
Crimson Lake	(or Cyanine Blue)	Roman Sepia	Sepia
Indian Yellow	Mars Yellow	Scarlet Lake	Warm Sepia
	Neutral Orange		

2*s.* each.

Cobalt Blue | Orange Vermilion | Violet Carmine

3*s.* each.

Aureolin	Cadmium Orange	Gallstone	Rose Madder
Burnt Carmine	Carmine	Green Oxide Chrom.	(or Madder Lake)
Cadmium Yellow, Pale	French Blue (or	Indian Purple	Viridian
Cadmium Yellow	French Ultramarine)	Pink Madder	

5s. each.

Mars Orange | Purple Madder | Ultramarine Ash | Smalt

JAPANNED TIN BOXES OF MOIST TUBE WATER COLOURS,

Containing 12 Moist Tubes £1 1*s.*; 15 ditto, £1 11*s.* 6*d.*; 20 ditto, £2 2*s.*; 24 ditto, £2 12*s.* 6*d.*; 30 ditto, £3 13*s.* 6*d.*

WINSOR & NEWTON'S
GLASS-COVERED MOIST WATER COLOURS
FOR
Illumination and Missal Painting,
Decorative and Ornamental Work, &c.

(*See illustration on opposite page.*)

The complete separation effected by the Colours being contained in separate Gallipots, the protection afforded by the glass lids, and the convenience of seeing tints through them, cause this form of colour to be most useful in all cases where it is of importance to avoid dust, dirt, and accidental admixture of tints. WINSOR and NEWTON'S Glass-Covered Moist Colours, being preserved clean and unsullied while in use, have been adopted generally for Illumination, and all kindred arts.

Colours and Prices same as those of Moist Water Colours in Pans. *Pages* 12 and 13.

WINSOR & NEWTON'S
FITTED BOXES
OF GLASS-COVERED COLOURS AND MATERIALS
FOR
Illumination and Missal Painting,
DECORATIVE AND ORNAMENTAL WORK, &c.

Half Guinea Box.—Containing seven Half Colours in Pans, and fittings.

Guinea Box.—Containing eight Glass-covered Colours, and Materials.

Guinea and a Half Box.—Containing twelve ditto ditto.

Two Guinea Box.—Containing sixteen ditto ditto.

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Five Guinea Box.—Containing twenty-four ditto and complete Materials.

GLASS-COVERED MOIST WATER COLOUR.

(*See opposite page.*)

WINSOR & NEWTON'S
JAPANNED TIN BOX OF COLOURS AND MATERIALS FOR
PAINTING ON GLASS.

Price £2 2*s*.

WINSOR & NEWTON'S FRENCH POLISHED MAHOGANY
CADDY LID BOX OF COLOURS AND MATERIALS FOR
Heraldic Blazoning.

Price £3 3*s*.

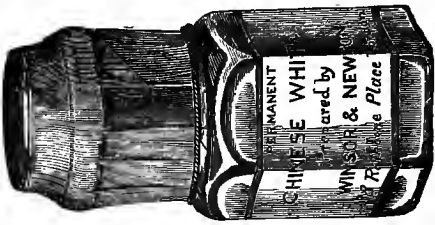
INDIAN INK.

"SUPER SUPER" INDIAN INK.—(*Size of Stick.*)

	Per stick. *s.* *d.*		Per stick. *s.* *d.*
Good, small size 80 to the lb.	0 6	Best, larger, 40 to the lb.	1 6
Best, small size, „ „	1 0	Best, larger, 32 „	2 6
Very Choice "Super, Super"		per stick	7 6

WINSOR & NEWTON'S

PERMANENT CHINESE WHITE.



BOTTLE OF CHINESE WHITE. *(Size of the bottle.)*

WINSOR AND NEWTON'S Oxide of Zinc, sold under the name of

CHINESE WHITE.

A peculiar preparation of White Oxide of Zinc, the only eligible White Pigment for Water Colour Painters.

PRICE 1*s.* PER BOTTLE.

It is now upwards of *thirty-seven years* since WINSOR AND NEWTON turned their attention to remedying a want that was much felt by the Water Colour Painters of that day, viz.: of a White that should combine perfect permanency with good body in working. The invention and introduction of the pigment named by them "Chinese White" was the result, and its superior body and freedom of working immediately attracted the notice of the leading Water Colour Painters.

The late Mr. J. D. Harding being particularly desirous of ascertaining its permanency, and by submitting it to the examination of one of the greatest Chemists in Europe (the late M. Faraday), having satisfied himself that it might be employed with perfect safety, strongly recommended it in preference to all other white pigments. In his "*Principles and Practice of Art*," he wrote:—

"When this pigment, which is prepared by Winsor and Newton under the name of 'Chinese White' was first put into my hands, some years ago, I applied to one of my friends, whose name as a chemist and philosopher is amongst the most distinguished in our country, to analyze it for me, and to tell me if I might rely on its durability; the reply was, that if it would in all other respects answer the purpose I required of it, I had nothing to fear on account of its durability."

Ever since that time (1834) WINSOR AND NEWTON'S Chinese White has been in use by all the Eminent Water Colour Artists, and it is a source of great satisfaction to WINSOR AND NEWTON that they are able to say, *that in no instance has any work of art, in which their White has been used, suffered from its employment*, while prior to its introduction the complaints of Whites changing were of every day occurrence

WINSOR & NEWTON'S

WATER COLOUR LIQUIDS, MEDIUMS, &c.

BOTTLE OF LIQUID COLOUR.
(Size of the bottle.)

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Liquid Indelible Brown Ink, for Outlines or for Sketching	per bottle	1	6
Liquid Prout's Brown	,,	1	6
Liquid Sepia	,,	1	6
Liquid Asphaltum. (In bottles similar to illustration on opposite page)	,,	1	6
Liquid Carmine	,,	1	6
Liquid Indian Ink, for Architects, Surveyors, &c.	,,	1	0
Colourless Liquid Ox Gall	,,	1	0
Artist's prepared Gum Water; pure, clear, and strong . . . . small bottles	,,	0	6
Ditto ditto middle bottles	,,	0	9
Ditto ditto large bottles	,,	1	0
Water Colour Megilp	,,	1	6
Illuminating Body, for Illumination, Missal Painting, &c.	,,	1	6
Raising Preparation, for Illumination, Missal Painting, &c.	,,	1	6
Water Mat Gold Size	per gallipot	1	6
Prepared Ox Gall	,,	0	6

WINSOR & NEWTON'S

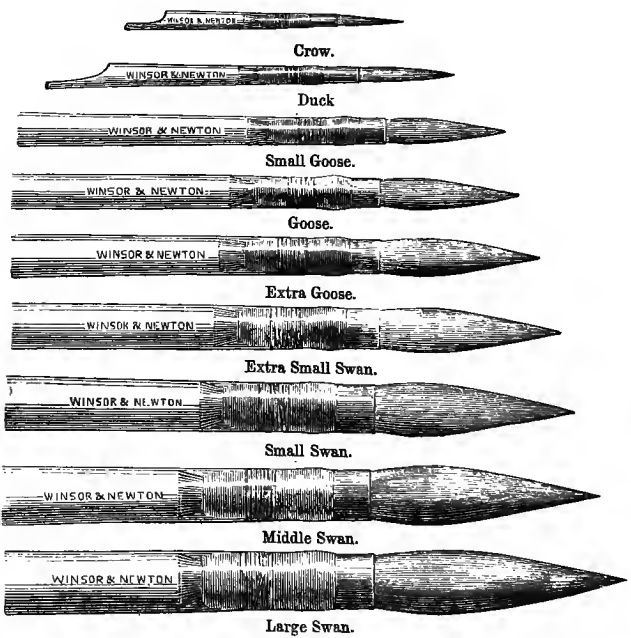
FINEST

BROWN OR RED SABLE BRUSHES

IN QUILLS

FOR

WATER COLOUR PAINTING.



WATER COLOUR SABLES IN QUILLS.
(Sizes of the Brushes.)

WINSOR & NEWTON'S

FINEST BROWN OR RED **SABLES IN QUILLS.**

(*See illustrations on opposite page.*)

		s.	*d.*			*s.*	*d.*
Crow . .	each	0	6	Extra Small Swan .	each	4	6
Duck . .	,,	0	8	Small ,, .	,,	6	6
Goose . .	,,	1	0	Middle ,, .	,,	8	6
Extra Goose .	,,	1	6	Large ,, .	,,	10	6

FINE **SIBERIAN HAIR** BRUSHES **IN QUILLS.**

		s.	*d.*			*s.*	*d.*
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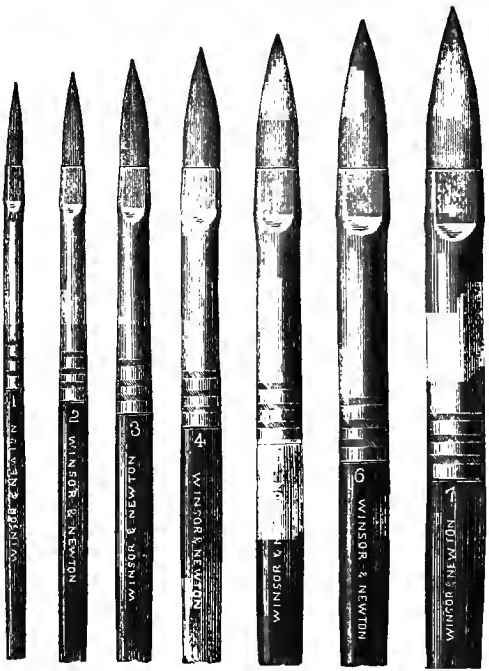
Duck . . .	,,	0	4	Small ,, .	,,	2	6
Goose . . .	,,	0	6	Middle ,, .	,,	3	6
				Large ,, .	,,	5	0

CAMEL HAIR BRUSHES **IN QUILLS.**

		s.	*d.*			*s.*	*d.*
Crow . . .	each	0	1	Extra Small Swan .	each	0	9
Duck . . .	,,	0	1	Small ,, .	,,	1	0
Goose . . .	,,	0	2	Middle ,, .	,,	1	6
				Large ,, .	,,	2	0

WINSOR & NEWTON'S
FINEST BROWN OR RED WATER COLOUR
SABLES IN ALBATA.—FLAT.

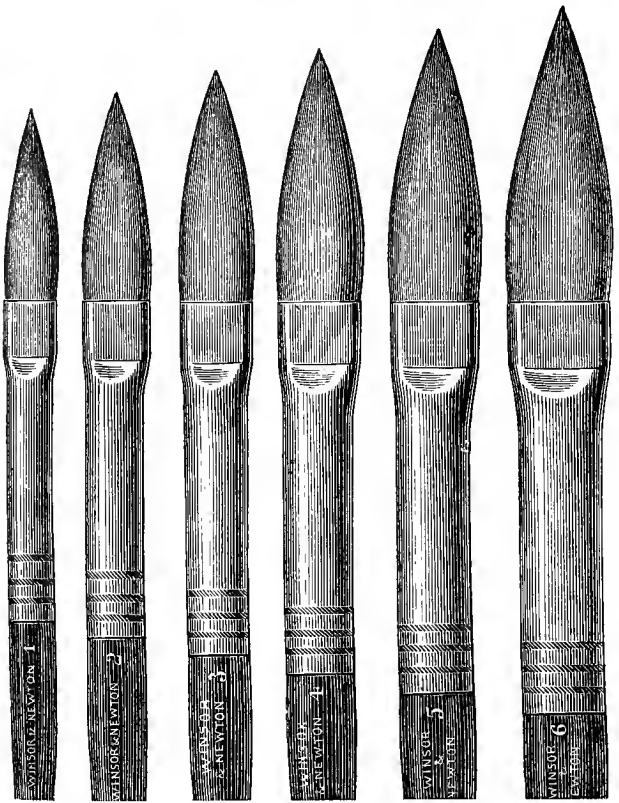


FLAT WATER COLOUR SABLES IN ALBATA.—(*Sizes of the Brushes.*)

		s.	d.			s.	d.
No. 1	each	1	0	No. 5	each	2	6
„ 2	„	1	3	„ 6	„	3	0
„ 3	„	1	6	„ 7	„	4	0
„ 4	„	2	0				

N.B.—These Brushes have *Ebony* Handles, and are marked with *three* nerls on their *Albata* Ferrules.

DITTO.—EXTRA LARGE SERIES.

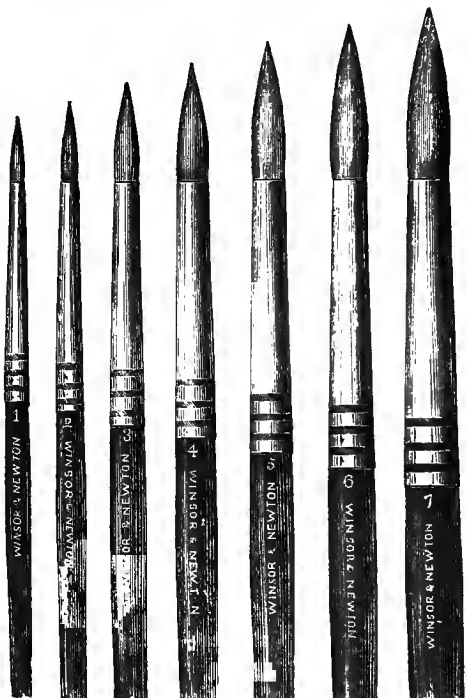


FLAT SABLES IN ALBATA.—EXTRA LARGE SERIES.—(*Sizes of the Brushes.*)

		s.	d.			s.	d.
No. 1	each	6	0	No. 4	each	15	0
„ 2	„	9	0	„ 5	„	18	0
„ 3	„	12	0	„ 6	„	21	0

Note.—Nos. 4, 5 and 6 made in *Brown* Sable only.

WINSOR & NEWTON'S
FINEST BROWN OR RED WATER COLOUR
SABLES IN ALBATA.—ROUND.

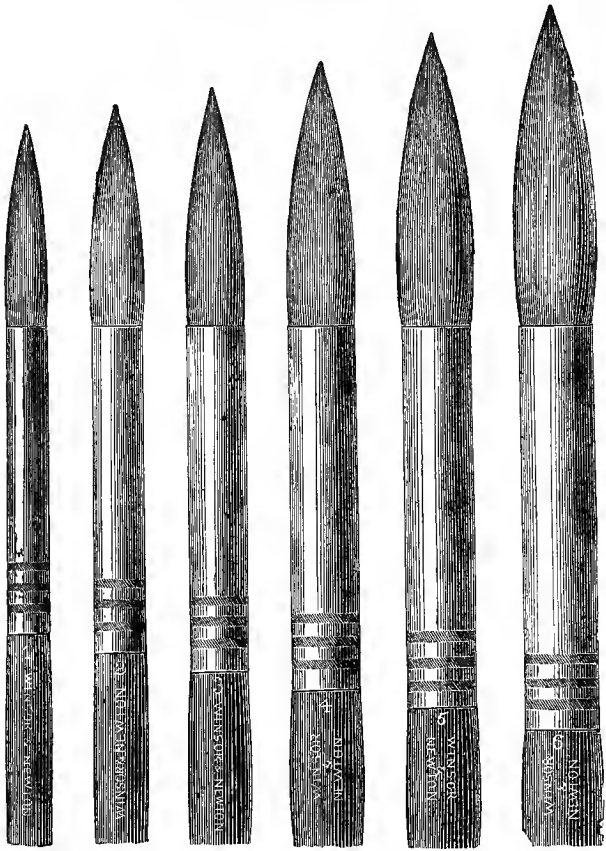


ROUND WATER COLOUR SABLES IN ALBATA.—(*Sizes of the* ***Brushes.***)

		s.	d.			s.	d.
No. 1	each	1	0	No. 5	each	2	6
„ 2	„	1	3	„ 6	„	3	0
„ 3	„	1	6	„ 7	„	4	0
„ 4	„	2	0				

N.B.—These Brushes have ***Ebony*** Handles, and are marked with *three* nerls on their ***Albata*** Ferrules.

DITTO—**EXTRA LARGE SERIES.**

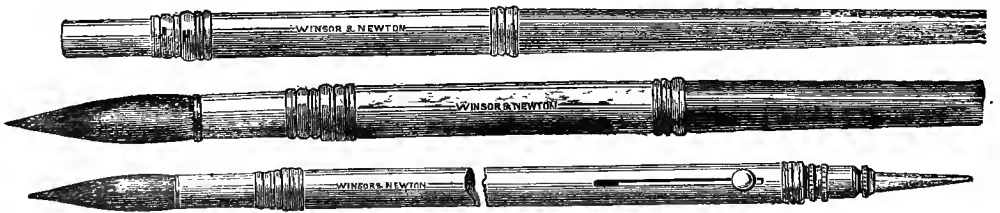


ROUND SABLES IN ALBATA.—EXTRA LARGE SERIES.—(*Sizes of the Brushes.*)

		s.	d.			s.	d.			s.	d.
No. 1	each	6	0	No. 3	each	12	0	No. 5	each	18	0
„ 2	„	9	0	„ 4	„	15	0	„ 6	„	21	0

Note.—Nos. 4, 5 and 6 made in *Brown* Sable only.

WINSOR & NEWTON'S **POCKET SABLES** IN ALBATA.

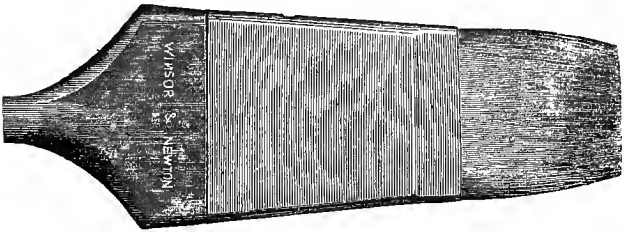


POCKET SABLES IN ALBATA. (*Sizes of the Pocket Brushes.*)

		s.	d.
Small Pocket Sable in Albata	each	7	6
Large Pocket Sable in Albata	„	10	6
Silver Brush Case and Pencil combined . . .	„	15	0
M. Leads for replenishing ditto	per box	0	6

These Brushes are made to accompany any of the Registered Boxes of Moist Colours (pages 21 and 22); thus supplying a light and instantly available means of sketching, tinting, or making colour notes.

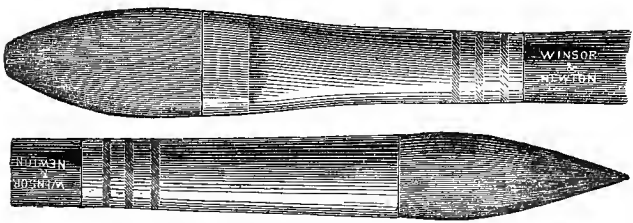
BROAD RED SABLE BRUSHES **IN ALBATA.**



BROAD RED SABLE IN ALBATA. (*Size of the* 1 *inch Brush.*)

$\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2, and $2\frac{1}{2}$ inches wide. Price 5*s.* per inch.

SKY OR **WASH** BRUSHES.



WASH DYED SABLES IN ALBATA. (*Sizes of the Brushes.*)

		s.	*d.*
Siberians in Tin, Flat	each	1	6
Ditto in Quill, Round	„	2	6
Wash Dyed Sables in Tin, Flat or Round . . .	„	3	6
Ditto in Albata, Flat or Round	„	5	0

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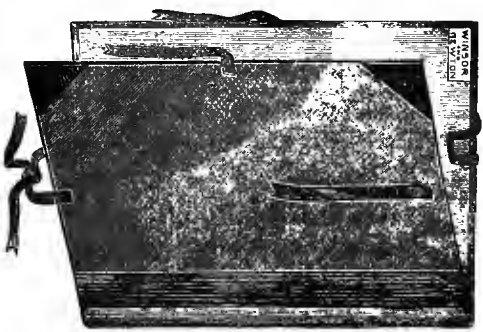

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8vo.	Double Elephant	12 „ 9 „	15	0	12	6
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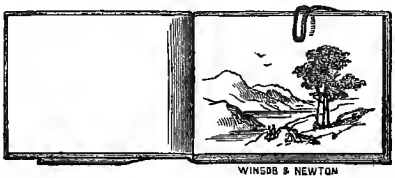

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FF.	Very firm (for light shading)	
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HB.	Hard and Black (for free sketching)	
B.	Black (for ordinary shading)	
BB.	Soft Black (for deep shading)	
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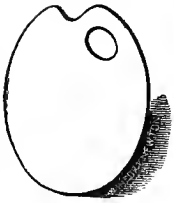

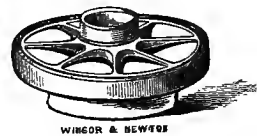

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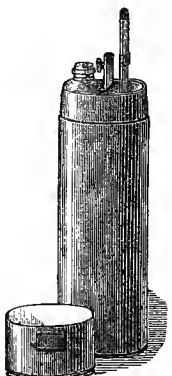

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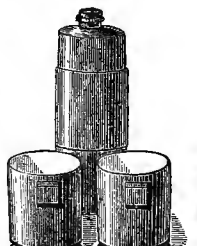

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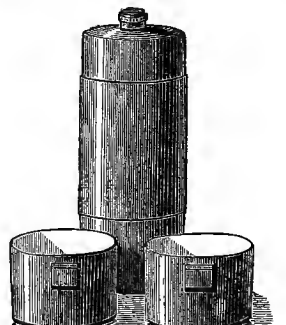

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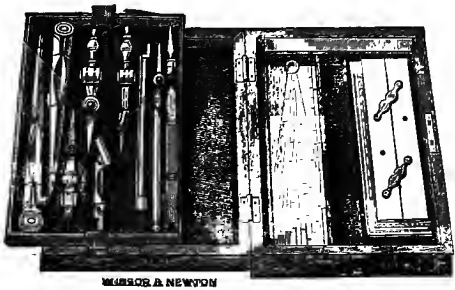

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